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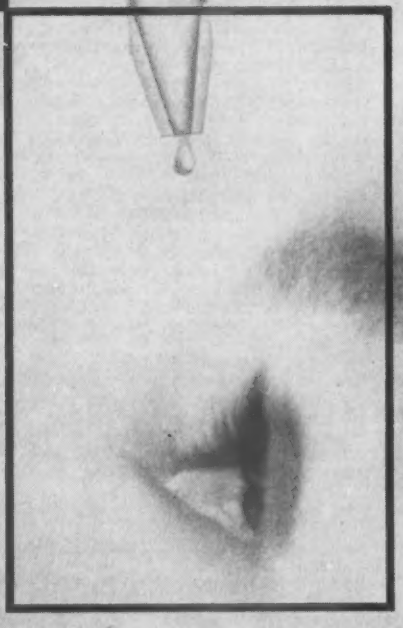

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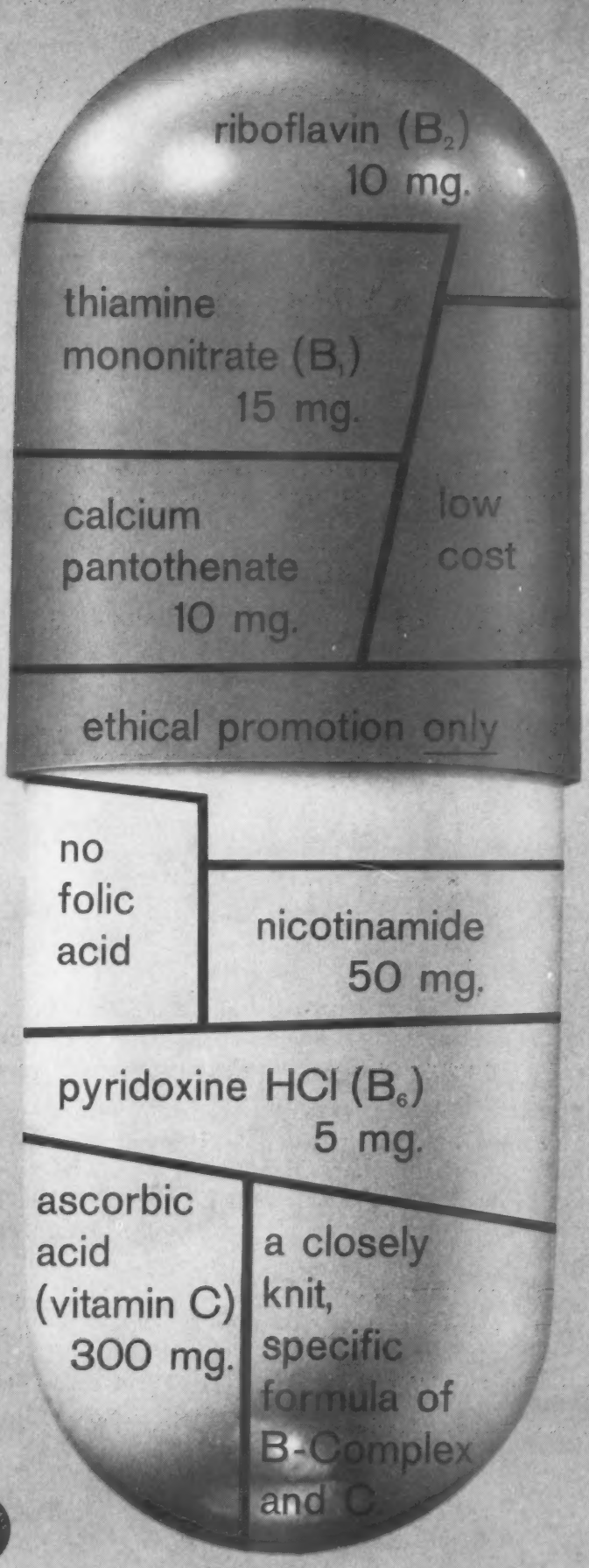
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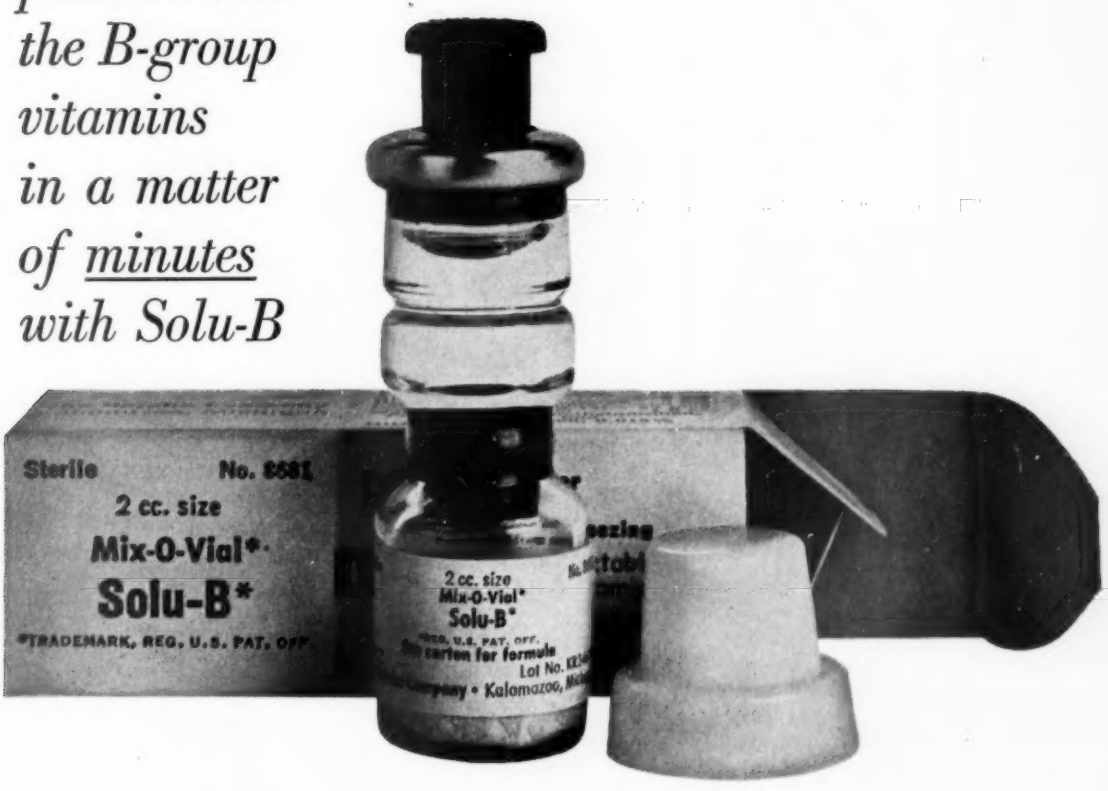

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Northern California Society

Members of the Northern California Society of Hospital Pharmacists met at the Jack Tar Hotel in San Francisco on April 26. The meeting was held in conjunction with the Convention of the Association of Western Hospitals and was preceded by a breakfast sponsored by Eli Lilly and Company.

Included on the program was a discussion on "You and Your Responsibilities," by Mr. Alfred H. Hardt of Eli Lilly. Also of high interest was a presentation by Dr. John Ratcliffe, Mills Memorial Hospital, San Mateo, who discussed experiences as a member of the staff of the S.S. HOPE.

Sixty-seven members participated in the meeting.

The 148th meeting of the Northern California Society was held at the San Joaquin County General Hospital in Stockton on May 9. The program included a talk on "Narcotics and Law Enforcement," by Michael Canlis, sheriff and coroner of San Joaquin County.

Business transacted during the meeting included reports on the ASHP Annual Meeting presented by William E. Dudley and Jack S. Heard. Mr. George Gruber announced plans in connection with the Institute which is being held in San Francisco in August.

Colorado Society

The Annual Hospital Pharmacy Seminar, sponsored by the Colorado Society of Hospital Pharmacists in cooperation with the University of Colorado School of Pharmacy and the Colorado Hospital Association, was held on Friday and Saturday, April 7 and 8 at the Fitzsimons General Hospital in Denver.

Guest speakers include A. C. Scott, manager of hospital sales, The Upjohn Company; Al Mannino, Geigy Pharmaceuticals; Angelo P. Angelides, M.D., Medical Advisor, Liaison Officer, Fitzsimons General Hospital; Clifton Latiolais, president, AMERICAN SOCIETY OF HOSPITAL PHARMACISTS; Himatlal Mehta, assistant professor of pharmacy, University of Colorado; Arnold Hennig, associate professor of pharmacy, University of Colorado; George Field, assistant purchasing agent, University of Colorado Medical Center; Lucille Rykken, director of nurses, General Rose Hospital; Arvid Brekke, assistant administrator, Swedish Medical Center; Alexander Traill, M.D., instructor in psychiatry, University of Colorado Medical Center; Tony E. Jones, associate professor of pharmaceutical chemistry, University of Colorado; Gloria A. Ardueser, chief pharmacist, Swedish Medical Center; Margie Gaasch, chief, outpatient division, pharmacy department, University of Colorado Medical Center; and Samuel Kohan, chief of manufacturing and pharmacy consultant, Fitzsimons General Hospital.

Subjects discussed at the Colorado Seminar included Twenty-four Hour Pharmacy Coverage, Drug Purchasing—Centralized *versus* Decentralized, Investigational Drug Regulations, Bulk Compounding, Streamlined Outpatient Dispensing, Nursing—Pharmacy Service Relations, The Hospital Administrator and the Pharmacy Department, Reference Sources for Hospital Pharmacists, Psychotherapeutic Agents, The Brewer System, Will Automation Replace the Hospital Pharmacy, and An Insight into Hospital Pharmacy in Colorado. Also, ASHP President Clifton Latiolais gave the principal address at the banquet.

Connecticut Society

Members of the Connecticut Society of Hospital Pharmacists met on May 17 at the Wonder Bar Restaurant in Berlin, Connecticut. Announcement of officers for the new year include *President* Louis Annino, Middletown Memorial Hospital, Middletown; *Vice-President* Vito D'Aiuto, Bridgeport Hospital, Bridgeport; *Secretary* William S. Brown, Grace-New Haven Community Hospital, New Haven; and *Treasurer* Sister Maria Lucia, Hospital of St. Raphael, New Haven.

Business transacted at the meeting included an announcement regarding the revised Constitution and By-Laws which have been accepted and will become official as of September 1961, and a discussion on the question of licensure of hospital pharmacies in the state. With regard to the latter, it was decided that a questionnaire should be drawn up and directed to the membership in order to determine their feelings on the matter.

Southern Minnesota Society

Members of the recently organized Southern Minnesota Society of Hospital Pharmacists met at St. Mary's Hospital in Rochester on June 5. The meeting was presided over by President Neal Schwartau.

Official acceptance of the Southern Minnesota Society of Hospital Pharmacists as an affiliate of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS was noted in a communication from ASHP Secretary Joseph A. Oddis.

Other business included election of officers with the following named to serve for the next two years: Earl Schwerman, *president;* Robert Nordeen, *vice-president;* and Sister Torello, *secretary-treasurer.* Plans were also outlined for future meetings, including a picnic in August.

Included on the program was a presentation by Mr. Denzil Thorn, local representative for Abbott Laboratories.

Greater Kansas City Society

The Society of Hospital Pharmacists of Greater Kansas City met in the Conference Room, Blue Cross-Blue Shield Building in Kansas City on Wednesday, April 12 at 2:30 P.M. The meeting was presided over by President W. F. Wilhelm with seventeen members present.

Under old business, a report of the Disaster Committee was received, a report on the Health Fair was presented and progress with regard to organization of a local chapter of the American Pharmaceutical Association was also noted.

Under new business, the president appointed a committee to study the Constitution and By-Laws and report to the Society at the September meeting. Committee members include Sister Joseph Marie, *chairman,* Sister Rose Bernard and Sister Eva Marie.

Mr. Milton Stamatos, hospital representative for McKesson and Robbins, was present as a guest. He spoke briefly on hospital pharmacy practice throughout the country and also mentioned that McKesson continues to supply pins for members of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. This is handled through the national organization at Washington headquarters.

The Society voted to make a contribution of $50.00 to Project HOPE. This is in addition to any personal contributions which may be made.

The program included a film on the clinical uses of Chymar presented by representatives of Armour Laboratories.

Nebraska Society

Members of the Nebraska Society of Hospital Pharmacists met on Saturday, April 8, in the Cimarron Room at 42nd and Center Street, Lincoln. During the day, many members had attended the Pharmacy Seminar conducted at Creighton University, followed by an evening dinner sponsored by Pfizer Laboratories.

The Nebraska Society of Hospital Pharmacists met at the Blackstone Hotel in Lincoln on Saturday, May 13 at 4:30 P.M. President Robert Connor presided.

Under old business, the members were asked to take an active part in showing the film "Poison Control," to groups when called upon to do so. Mr. Frank Franco reported that he and Robert Connor showed the film to the Dundee Presbyterian Sunday School group and to the Ralston's C.Y.O. members and their parents. The groups showed a great deal of interest and asked many questions. Arrangements are being made to have the film centrally located, either in the hands of the president or in the hands of the chairman of the Project Committee. Some discussion was given to the use of the film on "Poison Control" on television.

Under communications, a letter was read from Mr. Pat Hanna who was the recipient of the Nebraska Society of Hospital Pharmacists' scholarship award. He expressed gratitude for the generosity of the members of the Nebraska Society who had made the scholarship available.

A report on the Annual Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and the Convention of the American Pharmaceutical Association held in Chicago was presented by Mr. Frank Franco, delegate from the Nebraska Society.

During the meeting a presentation of the Geigy Leadership Award in the form of a brass mortar and pestle was presented to outgoing president Robert Connor.

Following election of officers, those named to serve during the 1961-1962 term are: *President* Earl Mahoney, Nebraska Methodist Hospital, Omaha; *Vice-President* Kyle Taylor, St. Catherine Hospital, Omaha; *Treasurer* Neal Spencer, Nebraska University Hospital, Omaha; and *Secretary* Sister M. Carmelia, O.S.F., St. Joseph Hospital, Omaha.

Under new business, the president reminded members of the group of the requirements for members in the local Society which includes membership in the American Pharmaceutical Association and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. He pointed out that members who are not affiliated with the national organization are classified as associate members of the local group for a period of one year. Following that, if they do not wish to join the parent associations, they should be dropped from the affiliated chapter.

Following the meeting, a dinner was served in the Roof-Garden Room at the Blackstone Hotel. Hosts included Mr. Art Dow, Victor Petersen and Thomas Schaffer representing McKesson and Robbins.

New Jersey Society

Members of the New Jersey Society of Hospital Pharmacists met at St. Elizabeth Hospital in Elizabeth on May 18. Following dinner sponsored by Parke, Davis and Company, the meeting convened at 8:30 with the showing of a film "Better Medicines for a Better World," made available through Parke, Davis. Following the presentation, Vice-President Henry Roche expressed appreciation to Parke, Davis and also to the administrator of St. Elizabeth Hospital, Sister Ellen Patricia.

Mr. Henry Guerino, delegate from the New Jersey Society of Hospital Pharmacists to the Annual Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and the Convention of the American Pharmaceutical Association, gave a brief report on highlights of the sessions. Mrs. Evelyn Carlin reported on the Rutgers Pharmaceutical Conference and Regina Richards reported on the membership activities.

During the meeting, Geigy Leadership Awards in the form of mortars and pestles were presented to Past-Presidents

Dean Roy Bowers (second from left) of Rutgers College of Pharmacy, congratulates the newly installed officers of the New Jersey Society. Shown in photo are (left to right) Miss Regina R. Richards, secretary, Dean Bowers, Mr. Victor Ern, treasurer, Mr. Henry Roche, president, and Joyce Dolecki, vice-president

including Florence Frick (not present), Eugene Von Stanley, and Sister Marian.

During the business session, a proposal to amend the Constitution in order to provide for honorary members was approved. Following this, Dr. Roy Bowers, and Dr. John L. Voigt of Rutgers College of Pharmacy, were elected honorary members.

Officers of the New Jersey Society installed for the 1961-1962 term include Henry Roche, *president;* Joyce Dolecki, *vice-president;* Regina Richards, *secretary;* and Victor Ern, *treasurer.*

On installing the officers Dr. Roy Bowers stressed the need for all segments of pharmacy to unite, stating that we should not be discouraged at disappointments.

Greater New York Chapter

The Greater New York Chapter of the American Society of Hospital Pharmacists held its regular monthly meeting at the Frances Schervier Home and Hospital on Tuesday, May 23, at 2:30 P.M. Sister Etheldreda presided.

Business included an announcement stating that Lederle Laboratories had offered to have the chapter visit their plant for next year's field trip. Also, the nominating committee announced results of the election by mail ballot. The following officers were named for the 1961-1962 term: Sister M. Bernardine, *president;* Sister M. Etheldreda, *vice-president;* Sister Mary Rita, *secretary;* and Sister M. Donatus, *treasurer.*

The secretary read the several communications received from Dr. William S. Apple, secretary of the American Pharmaceutical Association, regarding the current campaign to "Defend the Profession." The letter and suggested resolution on the subject were discussed. Upon motion duly made and seconded, the resolution was unanimously adopted that the Greater New York Chapter sponsor and contribute $30.00 to "Defend the Profession" campaign launched by the American Pharmaceutical Association.

Other business included a report on the tentative plan for the program of the coming Pharmacy Assembly of the New York State Council of Hospital Pharmacists to be held Saturday, October 14 in New York City. This was presented by Sister Donatus. It was also agreed that the Joint Meeting with the Southeastern Chapter be held in September.

After the completion of the business session, the remainder of the meeting was given over to a talk on "Relationship of Drug Therapy and Laboratory Tests" by Sister M. Nicodema, a member of the Chapter, who is both a pharmacist and a

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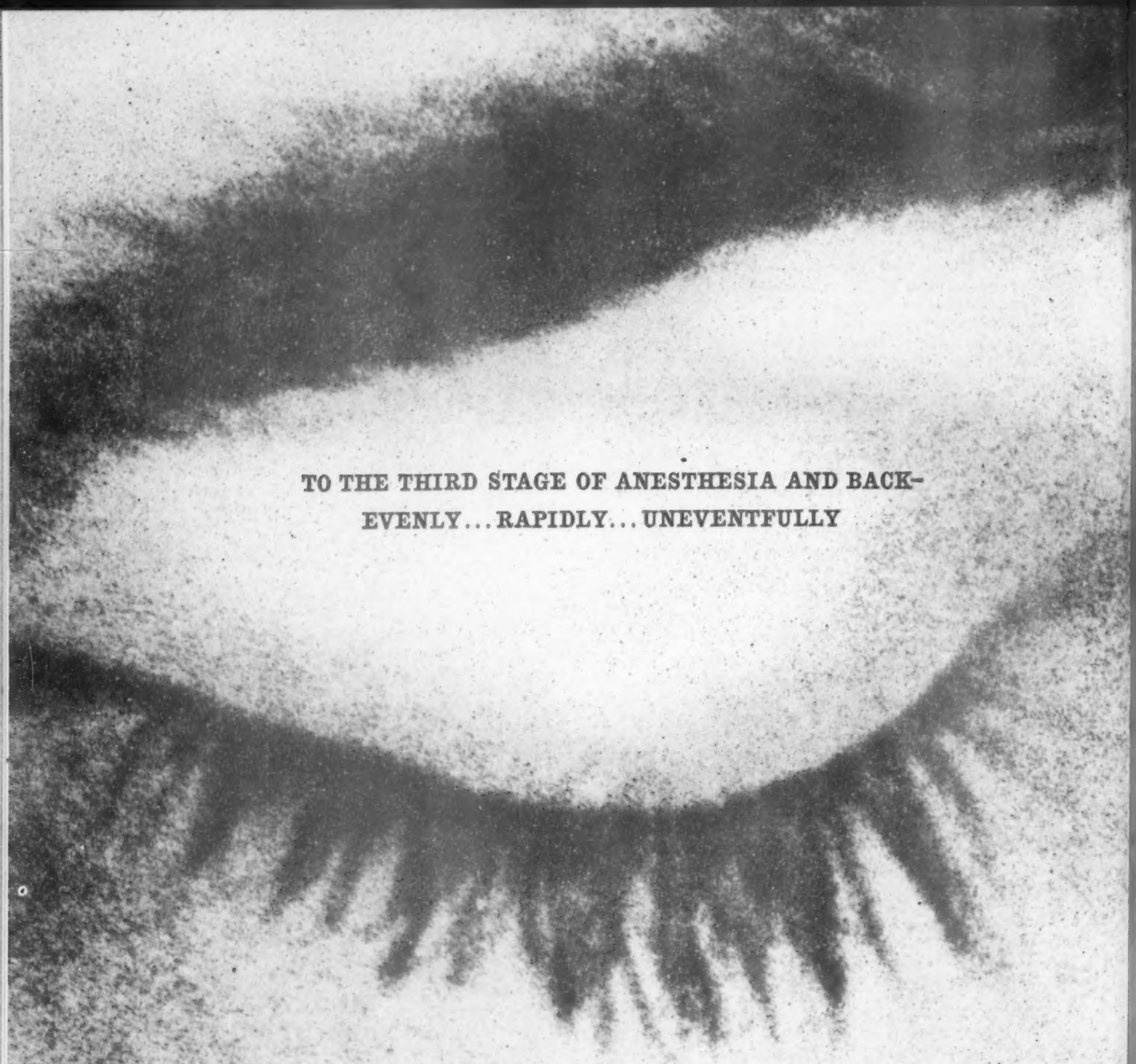

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laboratory technician. The discussion included such topics as anticoagulants, antibiotics, and drugs which may produce blood or liver toxicities. It was agreed that such talks not only widen the scope of one's knowledge but prove helpful in interdepartmental relationships so necessary in any institution.

The meeting was adjourned at 5:00 P.M. Refreshments were served following the meeting.

Northeastern New York Society

On Tuesday evening, May 30, the Northeastern New York Society of Hospital Pharmacists held its annual election meeting in the Director's Conference Room at the New York State Department of Health, Division of Laboratories and Research, in Albany. The following officers were elected to serve for the 1961-1962 term: Fay Peck, Jr., *president,* Albany Medical Center Hospital, Albany; Helen A. Davis, *vice-president,* Columbia Memorial Hospital, Hudson; Walter M. Markunas, *treasurer,* Veterans Administration Hospital, Albany; and Marilyn McCarthy, *recording secretary,* St. Mary's Hospital, Troy.

Following the election, a brief business meeting was conducted at which the Society's *Bulletin,* the Installation Dinner, and participation in the forthcoming Institute on Hospital Pharmacy which is being held at Siena College later in the month, were discussed.

On Saturday evening, June 10, Dr. Francis J. O'Brien, dean of the Albany College of Pharmacy and an honorary member of the Northeastern New York Society, installed the new officers and served as toastmaster for the meeting. About sixty-five members attended. Hosts for the meeting were E. R. Squibb and Sons. Dr. Roger Varney of the Quality Control Section of Squibb, the main speaker for the evening, gave a resume of details that are observed in the "Quality Control" section of a large pharmaceutical company. Also present was Mr. Paul A. Freeman, host for the evening, representing Squibb.

Following the dinner, President-Elect Fay Peck, Jr. thanked the members for their support and outlined plans for the coming professional year.

The Installation Dinner was held at the Thruway Motel in Albany.

Western New York Chapter

The final meeting, before adjournment for the summer months, of the Western New York Chapter of the American Society of Hospital Pharmacists was held at Hotel Statler in Buffalo on May 17. A dinner, followed by a movie on the Company's drug "Librium," was sponsored by Hoffmann-La Roche.

Following the program, a short business meeting was held at which time members voted in favor of raising the annual dues in the chapter to $6.00. Outgoing President Kathleen DeClare then introduced new officers for the 1961-1962 term including *President* Herbert Riemen, Sisters of Charity Hospital, Buffalo; *Vice-President* Sister Mary Bernadine, Mt. St. Mary's Hospital, Niagara Falls; *Recording Secretary* Patricia Kochan, Niagara Falls Memorial Hospital, Niagara Falls; *Corresponding Secretary* Barbara Hayes, Mercy Hospital, Buffalo; and *Treasurer* Jacob Carotta, Buffalo General Hospital, Buffalo.

The meeting was adjourned after a brief message from the new president Mr. Riemen.

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Ohio Society

The Annual Convention of the Ohio Society of Hospital Pharmacists, affiliated with the Ohio Hospital Association, was held at the Deshler-Hilton Hotel in Columbus on April 4-5. Speakers and topics for the first session included:

"Nursing Service Needs Which Pharmacy Service Can Provide," by Georgiana Ochs, director of nursing service, Springfield City Hospital, Springfield.

"Additional Responsibilities of the Hospital Pharmacists," by Sister M. Gonzales, chief pharmacist, Mercy Hospital, Pittsburgh, Pa.

"Evaluating Our Professional Organizations," by W. Owen Hays, Ohio State Pharmaceutical Association Council Member.

"Facts and Figures"—A Panel Discussion. Participants included Russell Lovell, director of pharmacy, Akron City Hospital, Akron; Mary Morgan, director of pharmacy, Children's Hospital, Akron; and Evlyn Gray Scott, director of pharmacy, St. Luke's Hospital, Cleveland.

During the second session, the following topics were discussed:

"Hospital Pharmacy in Ohio—Past, Present and Future."

"Past"—A brief history of the O.S.H.P. since its founding in 1939 by Margaret F. Sherwood, assistant chief pharmacist, St. Luke's Hospital, Cleveland.

"Present"—An up to the minute report by the president on activities of pharmacy organizations influencing hospital pharmacy on a state level. Tom Sisk, chief pharmacist, St. Joseph's Hospital, Lorain, Ohio.

"Future"—The in-coming president's acceptance address stating plans and objectives for the coming year. Jeanne Sickafoose, director of pharmacy, Aultman Hospital, Canton, Ohio.

"Current Activities in Hospital Pharmacy," Clifton Latiolais, president, American Society of Hospital Pharmacists, Ohio State University Health Center, Columbus.

Following the business meeting, the newly elected officers for the coming year were announced including: *President-Elect* Margaret F. Sherwood, Cleveland; and *Vice-President* Nancy Marconett, Springfield.

The general hospital sessions were open to all attending members and as usual provided interesting and valuable information; once again, the hospital pharmacists of Ohio were pleased to meet with the Ohio Hospital Association.

Akron Area Society

The Akron Area Society of Hospital Pharmacists met on May 9 at Akron General Hospital. The meeting was called to order by President Hildah Douglas. Guests of the Society were students from Pittsburgh, Ohio Northern, Ohio State and Duquesne Colleges of Pharmacy. These students and faculty members were participating in the Student Visitation Program.

Hildah Douglas welcomed the students and gave an explanation of the project. Jeanne Sickafoose spoke to the group on the "Organizational History of Hospital Pharmacy." William Slabodnick, with the aid of a flannel board, explained "Hospital Organization and Function."

To correlate hospital activities, a movie "Helping Hands for Julie" was shown.

A social hour followed the meeting.

Central Ohio Society

Members of the Central Ohio Society of Hospital Pharmacists met at the Jai-Lai Cafe in Columbus on May 9, 1961. Twenty-eight members and guests were present.

Since this was the installation banquet, no business meeting was held. Officers installed for the coming year include *President* Stanley Brue, Ohio T.B. Hospital; *Vice-President* R. David Anderson, Ohio State University Health Center; *Secretary* Melvin Simon, Ohio State University Health Center; *Corresponding Secretary* Howard Snider, Mt. Carmel Hospital; and *Treasurer* Benjamin F. Holland, Ohio State University Health Center; all from Columbus.

Oregon Society

Members of the Oregon Society of Hospital Pharmacists met at the Veteran's Hospital in Portland, Oregon on May 17. Retiring President Richard Neal introduced the new officers for the 1961-1962 term including Roy Ward, *president,* Good Samaritan Hospital, Corvallis; Robert L. Brooks, *vice-president,* Salem Memorial Hospital, Salem; and Alma Kaeser, *secretary-treasurer,* Good Samaritan Hospital, Portland.

Plans for the fall include a Seminar on Hospital Pharmacy to be sponsored in cooperation with the School of Pharmacy at Oregon State College in Corvallis.

The program for the May 17 meeting included an illustrated lecture on "Unusual Oral Conditions," by Dr. Estepp of the V.A. Hospital in Portland.

Utah Society

The Utah Society of Hospital Pharmacists held its annual banquet in the dining room of the Presidential Building in Salt Lake City on May 20. Forty-seven members and guests were in attendance.

Mr. George Bender of Parke, Davis and Company, and Mr. Robert Thom, noted artist, both of Detroit, were guest speakers. They explained the research and background work which goes into presentation of one of Mr. Thom's paintings in the series on pharmacy and medicine.

President Charles E. Johnson was the recipient of the Geigy Leadership Award presented by Mr. Raymond Gannwell of Geigy Pharmaceuticals.

Virginia Society

The Virginia Society of Hospital Pharmacists met at the Richmond Memorial Hospital in Richmond on May 20. This was the annual meeting for election of officers. An excellent informative program was held in the afternoon ending with a dinner program in the evening. The speaker of the evening was Mr. Ralph Ware, secretary of the Virginia Pharmaceutical Association.

The following officers were elected for the coming year: *President* Lloyd J. Dixon, Veterans Administration Hospital, Kecoughtan; *Vice-President* Justine Wilkins, Medical College of Virginia Hospital, Richmond; and *Secretary-Treasurer* Helen Roxanne Christian, Rockingham Memorial Hospital, Harrisonburg.

Wisconsin Society

The sixth meeting of the Wisconsin Society of Hospital Pharmacists was held on Friday, April 21, 1961 at 2:00 P.M. at Trinity Memorial Hospital, South Milwaukee.

Sister Elizabeth, administrator, gave a warm and cordial welcome. Mr. Elmer Geiger, chief pharmacist, also said a few words to the Society and introduced Kenneth Korn, assistant administrator, who spoke on "Changing Concepts of Hospitals in the Sixties." Mr. Korn expressed the view that the hospital is the unit with people representing the heart of the hospital; patients, public relations, policies, and costs are all parts comprising the unit. The unit will function properly if you have production and performance on a favorable relationship. The activities of the hospital and the viewpoints of the community must be harmonious.

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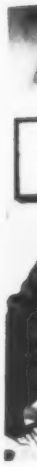

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Hospital Pharmacy Notes

No. 3 July/August/1961

by Dr. Glen J. Sperandio

Dr. Sperandio is associate professor of pharmacy at Purdue University, West Lafayette, Indiana, where he teaches dispensing and hospital pharmacy and also directs graduate research in the areas of clinical pharmacy and product formulation. He has had experience in the pharmaceutical industry and retail pharmacy as well as in hospitals, and, as editor of this series, he will discuss items of interest to the hospital pharmacist. Dr. Sperandio and Eli Lilly and Company invite your comments, suggestions, and contributions.

THE PHARMACIST'S JUPE

The item itself does not hold much interest for many pharmacists, but the word may arouse some curiosity among our readers. Frankly, that is why the word was used—to encourage further reading about a matter which should be given more thought by all who practice pharmacy. Roget's *Thesaurus* lists the word "jupe" as a synonym of Scotch origin for "coat." The pharmacist's coat, or "drug jacket," as it is called, is thus the object of this discussion.

Few institutions are more uniform-conscious than the hospital, and usually a uniform imparts status, as well as a degree of identity, to the wearer. Pharmacists, interns, operating room technicians, orderlies, nurses' aides, Gray Ladies, and, of course, nurses all wear uniforms designed for their specific duties. However, there appears to be less conformity to a standard type of uniform among pharmacists than among any other professional group, and many pharmacists do not bother to wear a uniform of any type while they are in the pharmacy. Since the drug jacket is not as distinctive as it once was and is frequently worn by individuals other than pharmacists, possibly an improved style of jacket should be designed for the pharmacist to make him clearly identifiable. Until that is done, the jackets currently available ought to be examined critically and a suitable one chosen for wear.

The drug jacket should be considered an article of dress rather than a protection for the clothing, since very little of the pharmacist's work in the hospital really exposes him to unclean working conditions. If he does have a messy job to do, certainly the uniform he wears should protect his street clothes, but there is no excuse for regularly or continually wearing a jacket that has become soiled. A properly fitted, clean, pressed drug jacket is an essential part of the pharmacist's working wardrobe.

Clothes do not make the man, and a white drug jacket will not make a pharmacist; but properly worn and cared for, it will be one more factor to help identify him as a member of the health team in the hospital.

This issue of "Hospital Pharmacy Notes" is presented for the pharmacist who is interested in improving his department. Here is a suggestion: Put on a clean jacket, be proud of being a pharmacist, and consider the six basic fundamentals of good pharmacy practice.

This insert is published as a service by Eli Lilly and Company, Indianapolis 6, Indiana.

SIX VITAL FACTORS

IN GOOD HOSPITAL PHARMACY PRACTICE

PROFESSIONAL SERVICES

The distinctive characteristic of a professional person is the service he provides. In the case of the hospital pharmacist, this service is the most important factor in establishing him as a specialist in the field of pharmaceuticals. If he wants the respect of his associates, he must earn it by actively seeking to serve them. He must clearly prove that he is competent not only in compounding and dispensing drugs but also in handling all the problems related to their procurement and use.

The hospital pharmacist must recognize his responsibilities, accept his obligations, and discharge his duties accordingly. His basic philosophy should be to give more than is expected of him. He must not be content merely to report to work day after day and routinely and mechanically perform his various tasks; instead, he should continually think of the role his department plays in the operation of the hospital as a whole and try to expand its services in order to utilize his special training for the benefit of others. A few suggestions:

1. Organize help sessions for student nurses in pharmaceutical arithmetic and chemistry.
2. Set up voluntary help classes for interns in pharmacology, prescription writing, and new therapeutic agents.
3. Supply brief reviews of new books that are of interest to the medical and nursing staffs.
4. Issue a regular listing of all new drugs, whether stocked by the pharmacy or not.

COMMUNICATIONS

One of the biggest problems for today's pharmacist is maintaining effective communications with all of the hospital areas with which he is involved. Paradoxically, one of the greatest opportunities for strengthening his department is offered through good communications, because understanding is dependent upon the transfer of information in one manner or another. How this information is transmitted usually makes a lasting impression on the recipient.

In the hospital, the pharmacist must keep in touch with individuals in all departments, although he spends the major part of his working day in his own area. When he cannot communicate verbally, he must do so by means of written or printed matter. Regardless of the method used, the pharmacist must be cognizant of the fact that he is projecting his personal picture with every communication.

In talking, both to individuals and to groups, the pharmacist should make an effort to speak clearly and in a well-modulated voice. Good grammar and diction identify an educated person, and the excessive use of slang or colloquialisms does little to enhance anyone's reputation. Full attention should be given to the person being addressed; and no matter what the situation may be, common rules of courtesy must always be observed.

If bulletins or newsletters are issued by the pharmacy, they should be carefully written and proofread several times before being distributed. Nothing, including interdepartmental memorandums and letters, should ever be allowed to leave the pharmacy with an obvious error in grammar or spelling. The printed word is permanent and cannot be changed; therefore, it must be perfect.

DEPARTMENTAL POLICIES

Proper organization of a department often means the difference between success and failure. The pharmacy department, whether it is a one-man operation or a service employing a dozen people, needs clearly defined regulations and policies of operation which are known to and respected by all. It is advisable that these principles of operation be written, reviewed, and revised to meet contemporary requirements, and the chief pharmacist should be their stanchest supporter.

Specific provisions should be made for handling the normal business of the pharmacy—drug requisitions, prescriptions, laboratory supplies, etc. Clear-cut policies must be established regarding working hours, sick leaves, vacations, and other concerns of the employees. Definite procedures should be outlined for obtaining emergency drugs when the pharmacy is closed and for servicing other employees of the hospital with drugs.

Of course, all policies must be reasonable and ap-

proved by the hospital administrator. Once they are accepted as official, however, they should be followed by everyone. Working policies that are properly established permit any department to operate with maximum efficiency. If a pharmacist has not adopted such policies, he should take a critical look at his department.

PROFESSIONAL DEVELOPMENT

Much has been written about the need for all pharmacists to keep abreast of new developments in their profession, and most people agree that this is necessary for those who expect to succeed. A pharmacist cannot stand still; he either advances or drops behind. Professional development is the product of a combination of experience and educational advancement after graduation.

Specifically, what should the hospital pharmacist do about his professional development? First of all, he should discard two much-abused excuses—that he does not have the time and that he does not have the money. Next, he should seek membership in his local, state, and national professional organizations, and he should give each of them what they need most—his participation and physical support. He should attend meetings regularly, *and he should let others know of his affiliations and activities.* Unfortunately, there are many doctors, nurses, and hospital administrators who have never heard of the A.Ph.A. or the A.S.H.P. These organizations deserve to be as prominent in the hospital as the A.M.A. or A.H.A., and it is up to the pharmacist to see that this is accomplished.

Finally, the pharmacist needs to read. He should schedule time for reading his journals and for keeping abreast of professional activities at the national level. This pursuit should be enjoyed without interruption, so that he can actually think about what he has read and will be able to remember it.

PERSONAL GROWTH

In an effort to progress and succeed in their chosen calling, many people often concentrate so intensely on the technical and professional aspects of their work that they neglect their personal growth. By "personal growth" we mean the development of the individual as a personality, with a sufficient diversity of interests so that he is known and respected by his friends for what he is rather than for what he does. Actually, personal development is vital to all the other factors listed. Everyone should have a hobby or some interests of a nature different from the work which he does, because in order to enjoy one's work, one must first enjoy life; and it is through a variety of experiences that living is most pleasant.

The hospital pharmacist should recognize the need for a personal expansion program and plan his social and extracurricular interests so that they will supplement his professional development program. Obviously, he cannot—and should not—attempt to schedule his private life as he does his professional activities, but he should make a positive effort to become interested and active in those things that will broaden his outlook on life. There is no set rule for choosing these interests; his personal inclination should be the guide. Inevitably, however, once started, personal growth is a progressive thing. One interest leads to another, and one contact leads to others. The main thing is to get started.

PUBLIC RELATIONS

In the preceding issue of "Hospital Pharmacy Notes," this topic was the subject of an editorial. The importance of having an organized public relations program cannot be overemphasized. The basic intent of such a program is to develop a respect and understanding in the people of the community. However, to be successful in this endeavor, the pharmacist must also respect and understand his public. His program should not be considered an advertising campaign; rather, it should be a sincere attempt to help his public contacts understand the role that pharmacy plays in the American health picture.

The hospital pharmacist's public contacts are of four general types: informal meetings in and about the hospital, business conferences and committee meetings, social contacts outside the hospital, and appearances before public groups. The extent and frequency of each of these depend to a large degree on the individual and his enthusiasm for his profession and his career. Probably the one type of public relations most neglected by the average hospital pharmacist is that of making appearances before public groups. Actually, such an activity is an opportunity to be sought rather than an inconvenience to be avoided; and for the person who does not like to prepare formal talks, here are other services he might consider:

1. Write feature articles or columns on health subjects for local papers.
2. Arrange to show movies on some aspect of medicine or pharmacy to church groups, service clubs, or social organizations. (The American College of Surgeons has a list of motion pictures—most of which can be procured free—which are approved for showing to the laity.)
3. Organize and conduct tours of the hospital for interested groups.
4. Initiate occasional programs for professional meetings in which he procures the speaker. (Many pharmaceutical houses will supply a speaker for these affairs.)

Remember, good public relations are mandatory.

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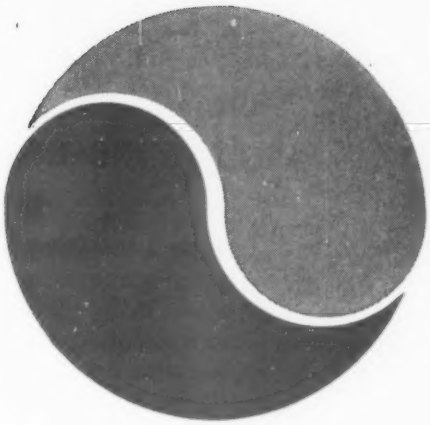

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(1) Danowski, T. S.: Diabetes Mellitus, Baltimore, Williams & Wilkins, 1957, p. 239. (2) McCune, W. G.: M. Clin. North America 44:1479, 1960. (3) Ackerman, R. F., **et al.**: Diabetes 7:398, 1958.

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Mr. Jack Bauer of Parke, Davis and Company was introduced by Sister Natalie, the president. He presented the film "Better Medicines for a Better World."

On calling the business meeting to order, Sister Natalie had the group informally introduce themselves. Twenty-eight were in attendance. The minutes of the March 17 meeting were approved as published.

Mr. George Wright, chairman of the Membership Committee, reported on the progress of our Pharmacy Directory. Of the 201 forms sent to hospital administrators, four-fifths have been returned. This response is felt to be very good.

In the absence of Thora Vervoren, Mr. Del Olszewski read the ballot comprised by the nominating committee. The group will vote by mail ballots and the results will be announced at the next meeting.

Mrs. Virginia McVey was asked by the president to serve as the Society's Tri-State Representative in Chicago.

The final meeting of the Society year of the Wisconsin Society of Hospital Pharmacists was held on Friday, May 19, at 2 P.M. at Luther Hospital in Beaver Dam. The host, Mr. Albert Lassanske, assistant administrator, welcomed the group.

A panel of those persons who attended the Annual Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and the Convention of the American Pharmaceutical Association in Chicago told their impressions and gave a report of the highlights. The panel consisted of the following persons: Thora Vervoren, Columbia Hospital, Milwaukee; William Benka, Milwaukee County Hospital, Milwaukee; Del Olszewski, St. Lukes' Hospital, Milwaukee; Patricia Murray, Milwaukee Hospital, Milwaukee; Don Jones, Yahr Lange Drugs, Milwaukee; Richard Henry, Madison General Hospital, Madison; and George Wright, Evangelical Deaconess Hospital, Milwaukee. A report on the Tri-State Hospital Convention and particularly the Conference on Pharmacy Service was presented by Virginia McVey, representative from the Wisconsin Society.

In closing the Society year, the names of new officers were announced including *President* George Wright, Evangelical Deaconess, Milwaukee; *President-Elect* Robert Kubiak, Mercy Hospital, Oshkosh; *Secretary* Sister M. Michaels, St. Agnes Hospital, Fond du Lac; and *Treasurer* Robert E. Berry, St. Anthony Hospital, Milwaukee.

On retiring from the presidency, Sister Natalie gave a speech of appreciation to the members for the support and cooperation extended during her term of office. In his acceptance speech, President George Wright made the following presentation to Sister Mary Natalie:

"As President elect it is my great pleasure to present to you on the behalf of the Wisconsin Society of Hospital Pharmacists, this gold, diamond studded pin, properly engraved as a token of appreciation from the entire membership to you for your diligence and devotion to the Society these many long months. We all appreciate your efforts in our behalf."

In a discussion concerning the A.Ph.A.'s campaign to "Defend the Profession," it was agreed to send $100.00 from the Wisconsin Society for this purpose. Encouragement was also given asking individual members to contribute.

Kentucky Hospital Pharmacists Organize

Hospital pharmacists from throughout Kentucky met at the new University of Kentucky Medical Center in Lexington Sunday, May 21, to form the Kentucky Society of Hospital Pharmacists. A principal objective in the formation of the new group is the improvement of pharmacy service to hospitalized patients in the state. The members expressed the desire for their organization to become affiliated with the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, the Kentucky Pharmaceutical Association, and the Kentucky Hospital Association.

Mr. Joseph Oddis, executive secretary of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, Washington, D. C., spoke on "The Role of Affiliated Chapters in Hospital Pharmacy Progress" and moderated a panel discussion on "The Elements of a Successful Hospital Pharmacy Organization." Other panelists were Mr. Joe Silverman, chief pharmacist, Harlan Memorial Hospital, Harlan, Kentucky, and Mr. Warren Hook, chief pharmacist, V.A. Hospital, Lexington.

Other speakers were Dr. Z. S. Gierlach, radiologist, Central Baptist Hospital, who discussed "Radiopharmaceuticals" and Dr. Charles Walton from the University of Kentucky College of Pharmacy who spoke on "Continuing Education for Pharmacists."

Temporary officers for the group are Carl Beck, chief pharmacist at Central Baptist Hospital, Lexington, *chairman*, and Bertram Newhall, chief pharmacist at Jewish Hospital, Louisville, *secretary*.

Shown above are speakers at the organizational meeting of the Kentucky Society of Hospital Pharmacists. Left to right are Mr. Joe Silverman, Harlan Memorial Hospital, Harlan; Mr. Joseph Oddis, executive secretary of the ASHP, Washington, D. C.; and Mr. Warren Hook, V. A. Hospital, Lexington. Below are the temporary officers of the Kentucky Society. Mr. Carl Beck (left), Central Baptist Hospital, Lexington, was named chairman and Mr. Bertram Newhall, Jewish Hospital, Louisville, Secretary.

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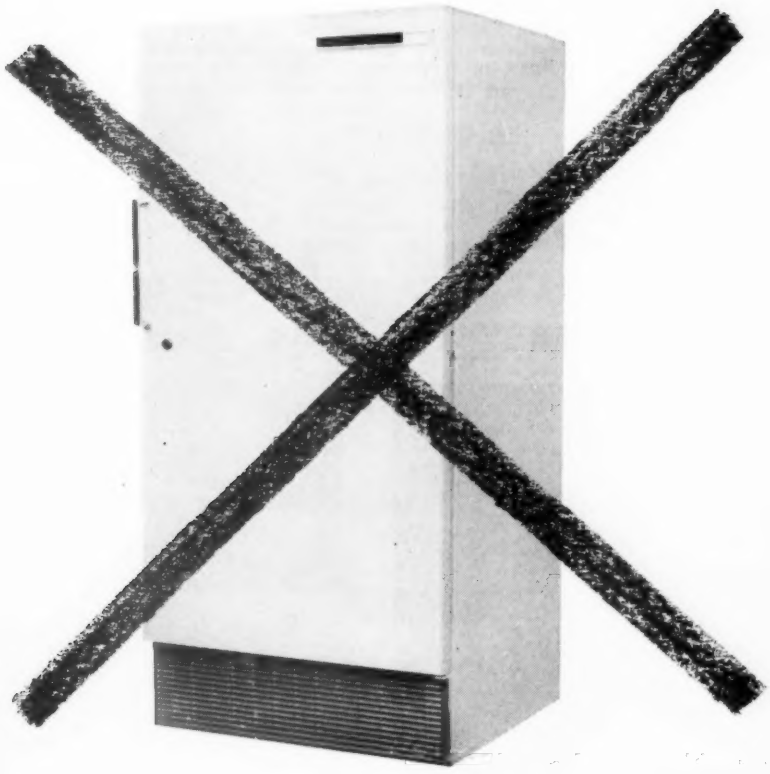

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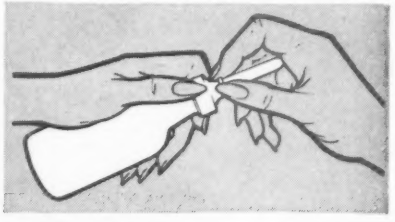

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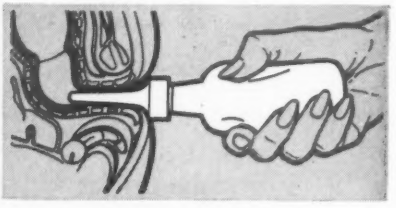

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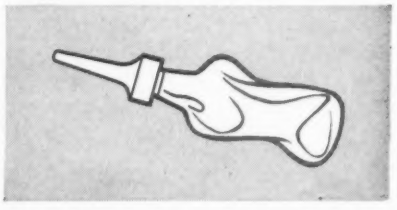

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"Defend the Profession"

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At the Annual Convention in Chicago, the following resolution was passed and all pharmacists are being asked to contribute to "Defend the Profession."

WHEREAS, certain antitrust cases are now pending which are vital to the entire profession, therefore

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1. Kareha, L. G., de Quevedo, N. G., Tighe, P., Kehrli, H. J., "Evaluation of Ilopan in Postoperative Abdominal Distention," Western J. Surg. Obs. & Gyn., 66:220, 1958.
2. Stone, M. L., Schlussel, S., Silberman, E., Mersheimer, W. L., "The Prophylaxis and Treatment of Postpartum and Postoperative Ileus with Pantothenyl Alcohol," Amer. J. Surgery, 97:191, 1959.

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Average Dose: Initial, 40-60 mg. For elderly and/or debilitated patients, 20-30 mg. Maintenance, 5-10 mg. daily, or as indicated by prothrombin time determinations.

1. Nora, J. J.: M. Times, May, 1961. 2. Nora, J. J.: J.A.M.A. 174:118, Sept. 10, 1960. 3. Baer, S., et al.: J.A.M.A. 167:704, June 7, 1958. 4. Moser, K. M.: Disease-a-Month, Chicago, Yr. Bk. Pub., Mar., 1960, p. 13. 5. Meyer, O. O.: Postgrad. Med. 24:110, Aug., 1958.

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A. J. Aballi, V. L. Banus, S. de Lamerens and S. Rozengvaig, J. Dis. Child. 97:524, 1959. And abstr. in J.A.M.A., 170:2249, 1959 and Nutrition Rev., 17:229, 1959.

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DEAR SIRS: The SOCIETY, at its recent Annual Convention, passed a resolution encouraging pharmaceutical manufacturers to code their literature and new product information with the *American Hospital Formulary Service* category number. This would help hospital pharmacists who use AHFS classifications for filing purposes and would encourage others to adopt this system.

We would be interested in preparing, as completely and as soon as possible, a list of hospitals now using AHFS classification numbers for filing drug literature in the pharmacy. Through this column, I am asking hospital pharmacists who use this system to inform me, by postal card or letter, at their earliest convenience.

GEORGE P. PROVOST, *Secretary*

American Hospital Formulary Service
American Society of Hospital Pharmacists
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Washington 7, D. C.

Use of Nonproprietary Names in Abstracts

DEAR SIRS: Since I read with interest the section on "Selected Pharmaceutical Abstracts" which appears regularly in the AMERICAN JOURNAL OF HOSPITAL PHARMACY, I have noted one difficulty in using the abstracts. It has to do with spotting the journal in which the original article appeared. I wonder, therefore, if it would be possible to get your printer to use a different type for the title and the journal reference. This, then, would distinguish the journal from the names of the authors in such a way that one could scan the information both thoroughly and quickly.

. . . I might mention something that is bound to prove troublesome for some time to come. In the paragraph on page 252 dealing with WIN 14,098, the abstracter uses the nonproprietary name for Demerol which is official in Great Britain, namely pethidine. It would have been helpful for U.S. readers to have used the *U.S.P.* title, Meperidine Hydrochloride. I confess it is regrettable that the *U.S.P.* and the *B.P.* occasionally can't agree on nonproprietary names but I feel sure that the number of disagreements will be far fewer in the future than in the past . . .

LLOYD C. MILLER, PH.D., *Director of Revision*

The United States Pharmacopeia
46 Park Avenue,
New York 16, New York

Comment from a Subscriber

DEAR SIRS: As a subscriber, I prefer the thoughts and opinions of several people rather than a free full page ad as appeared in THE JOURNAL of April (1961) under "Dear Sirs," page 213.

HAROLD DREVNO, R.Ph.

5624 Via DelColledo
Torrance, California

Compliment from a Contributor

DEAR SIRS: I enjoyed very much seeing my article in the April issue of the AMERICAN JOURNAL OF HOSPITAL PHARMACY. You did a fine job on the layout . . .

NORMAN H. FRANKE, R.Ph., Ph.D.,
Associate Professor of Pharmacy

College of Pharmacy
University of Kentucky
Lexington, Kentucky

Appreciation

DEAR SIRS: I wish to thank you and the editors of THE JOURNAL for the excellent layout of the article entitled "Preparation of Injectables—Philosophy and Master Procedures," which appeared in the April issue of the AMERICAN JOURNAL OF HOSPITAL PHARMACY. I also appreciate the three extra copies of THE JOURNAL which were sent to me.

May I again express my appreciation for the excellent work you are putting into the AMERICAN JOURNAL OF HOSPITAL PHARMACY. It is indeed the best journal in pharmacy.

HERBERT S. CARLIN, *Head, Pharmacy Dept.*

University of Colorado Medical Center
Denver 20, Colorado

arresting measure for surgical bleeding

When the customary surgical techniques for capillary hemostasis fail, prompt cessation of oozing may usually be obtained with OXYCEL (oxidized cellulose, Parke-Davis). This absorbable hemostatic conforms readily to all wound areas...assures a clear operating field...helps to shorten operative procedures.

Available in forms for every need: OXYCEL (oxidized cellulose, Parke-Davis). Pledgets (Cotton-type), 2¼ in. x 1 in. x 1 in.; Pads (Gauze-type) (8-ply), 3 in. x 3 in. and 4 in. x 12 in.; Strips (Gauze-type) (4-ply), 5 in. x ½ in., 18 in. x 2 in., 36 in. x ½ in., and 3 yd. x 2 in.; Foley cones (Gauze-type) (4-ply), 5 in. and 7 in. diameters. Sterile as supplied.

Indications: As an adjunct to effect hemostasis in bleeding associated with capillary oozing. *Use:* Strips—temporary packing of bleeding cavities, nasal passages, and tooth sockets; pads—temporary packing of surgical beds as after biopsies and to cover more or less extensive areas as in laparotomies; pledgets—in neurosurgery and in dental work for small localized bleeding areas; Foley cones—in prostatectomy.

Precaution: Excess amounts should be removed prior to surgical closure to avoid foreign-body reaction. Not to be used in sites of infection or following silver nitrate or other escharotic chemical agents. Contraindicated in clean bone surgery when poor vascularization is present and in instances where rapid callus formation is desired. Should be used sparingly in open reduction of fractures and in cancellous bone. Will not withstand heat sterilization. Remove from container aseptically.

FEB. 1961 (P-568)

PARKE-DAVIS

PARKE, DAVIS & COMPANY, Detroit 32, Michigan

absorbable hemostatic

OXYCEL®

editorial

by DON E. FRANCKE

Lessons from the Hahnemann Case

► AFTER A TWO AND ONE-HALF YEAR controversy, the Pennsylvania Board of Pharmacy has withdrawn its case against Joseph D'Ambola of Hahnemann Hospital in Philadelphia whose license it ordered suspended for 90 days because of alleged substitution (See *Am. J. Hosp. Pharm. 16*:349 (July) 1959). D'Ambola contested the Board's decision in the Pennsylvania courts and the suspension of his license was not carried out. Recently the Pennsylvania Board announced a procedure approving the dispensing of drugs under their nonproprietary names in hospitals, thus settling the long-standing controversy and dropping the case against D'Ambola. (See pages 402, 403 of this issue of THE JOURNAL for the regulations issued by the Pennsylvania Board).

The lesson of the Hahnemann case is that hospital pharmacists and hospitals have a duty to resist through the courts unjust decisions and actions of boards of pharmacy. Under the police power of the state, boards of pharmacy have broad regulatory powers which, if unchallenged, can go far beyond the law. For example, they have the power to make regulations not inconsistent with the law. The difficulty arises when boards do issue regulations which are inconsistent with the law because these, if unchallenged, have the effect of law and may be enforced for years or until the ruling is reversed by the courts or until the board, upon its own initiative, changes the regulation. Thus, it is only by challenging an unjust regulation that the profession and society may protect themselves from capricious and arbitrary actions of a regulatory agency. To cite an example, several state boards of pharmacy have regulations limiting credit for practical experience obtained in hospital pharmacies to six months. These regulations have not been challenged in the courts and, thus, they have the effect of law. If they were challenged it would be found, as it was in Wisconsin some years ago, that if the board issues a license to a hospital pharmacy it must grant the same credit for practical experience obtained there as is allowed for experience gained in a retail pharmacy similarly licensed.

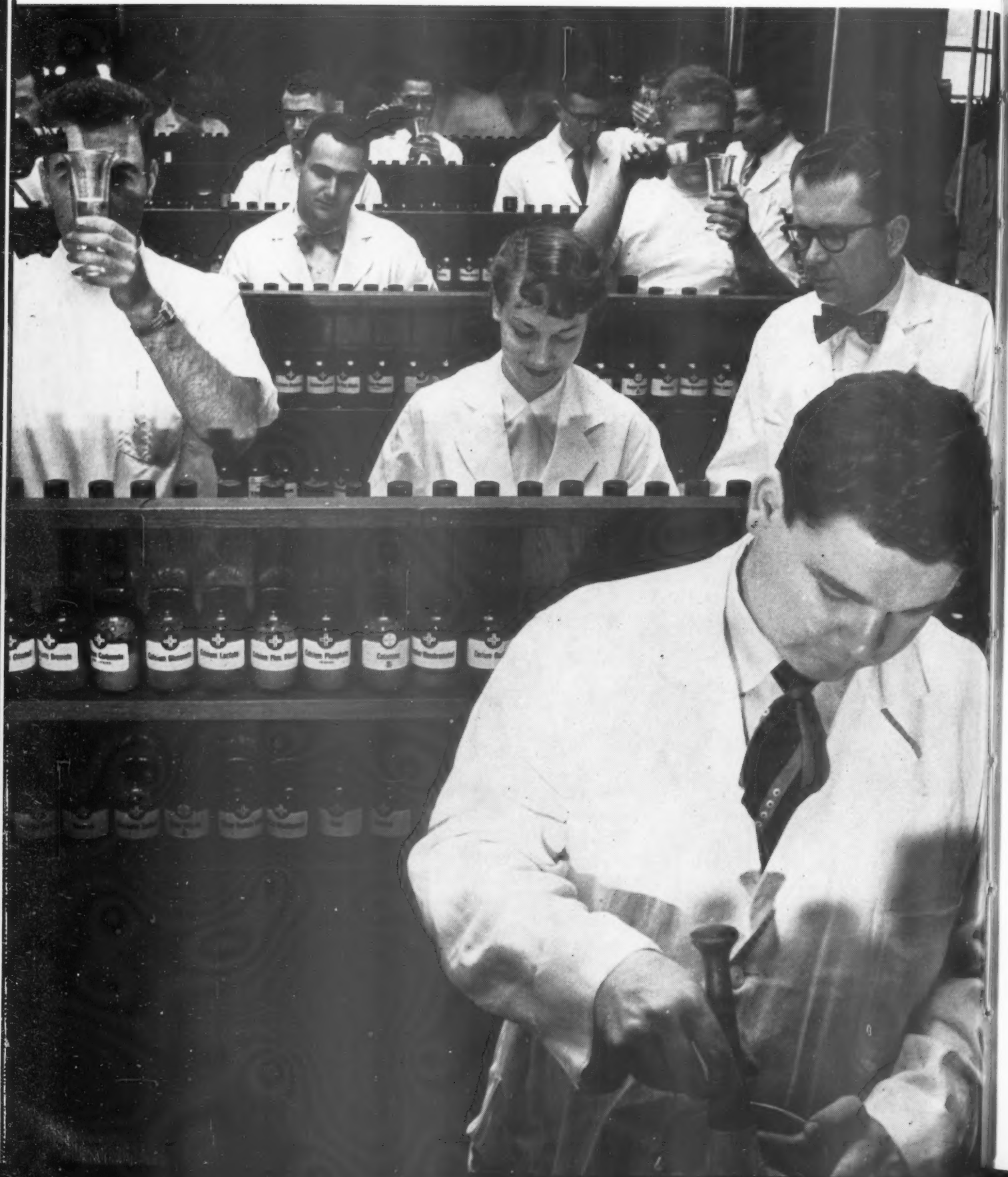
It is interesting that the regulations issued by the Pennsylvania Board follow closely the "Statement of Guiding Principles on the Operation of the Hospital Formulary System" as approved by the ASHP and the American Hospital Association (See *Am. J. Hosp. Pharm. 17*:609 (Oct.) 1960). Some elements of the pharmaceutical press have said that the Pennsylvania regulations differ in basic principle from the AHA-ASHP statement of principles since the latter allowed blanket prior consent with no opportunity for the physician to obtain a specific brand while the board's regulations allow the physician to obtain a specific brand. This is not true. The AHA-ASHP statement insists on the right of the physician to obtain a specific brand as shown by the following quotations from the statement:

> The institution of a hospital formulary system may be accomplished in any of several ways. Regardless of the method selected, it is essential that the consent of each person who is authorized to write a prescription or medication order, including house officers, be obtained in writing so that the hospital may prove such consent. However, expressed, the consent is to be effective *except as the prescriber otherwise indicates.*
>
> In the absence of written policies approved by the medical staff relative to the operation of the formulary system, the pharmacist must dispense the brand prescribed, bearing in mind his professional prerogative to confer with the physician should the prescribed brand be unavailable. *Also, where a formulary system has been adopted, provision should be made for the exercise of a physician's professional prerogative in those cases where he believes a specific brand of a drug is important to the care of his patient, and so designates in a manner approved by the medical staff (other than writing the brand name alone).*

Thus, the "Guiding Principles of the Formulary System" as approved by the ASHP and the American Hospital Association preserve the professional prerogatives of the individual physician.

Joseph D'Ambola merits high commendation for his personal conduct in this case. His appeal of the Board's suspension of his license has been a distinct contribution to hospitals and hospital pharmacy. His actions have reversed, at least for the time being, attempts by one board of pharmacy to invalidate the formulary system. Mr. D'Ambola's resistance required courage and fortitude. It may have been easier to accept the suspension of his license rather than to undergo the personal tribulations of the law's long delay. But he met the test well and deservedly merits recognition by the SOCIETY for his courageous stand on behalf of an important principle. His actions can well serve as a shining example to other hospital pharmacists who may be called upon to resist unjust actions of state regulatory agencies. To be commended also is Mr. Charles S. Paxon, Jr., the administrator of Hahnemann Hospital, whose strong and able support of Mr. D'Ambola throughout the case, helped immeasurably to achieve the final results.

GOALS FOR



by HERBERT L. FLACK

HOSPITAL PHARMACISTS

► FELLOW PHARMACISTS AND FRIENDS, it is the privilege of my lifetime to stand before you tonight in the position as recipient of the Harvey A. K. Whitney Award. It is an honor that my associates throughout this great nation have considered my contributions to hospital pharmacy practice such as to merit this award given in the name of one we shall always cherish and respect as the man who developed modern hospital pharmacy practice. I am humbled and pleased that my name shall be associated with that of Harvey A. K. Whitney and the previous award recipients.

To the Michigan Society of Hospital Pharmacists, I offer sincere thanks for making this award available to me. To both the Michigan Society and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, I offer sincere thanks for this wonderful award dinner. To you hospital pharmacists and friends, I offer sincere thanks for attending and for giving me the opportunity to discuss what I consider urgent "Goals for Hospital Pharmacists."

When I received the wonderful news of the Award, I suddenly realized that I had inherited an obligation to present a talk that should be both stimulating and brief. I hope this will be so.

Some time before receiving the news of this Award, I had read a brief of the "Report of the President's Commission on National Goals." With the knowledge that I might be repeating some of the goals and desires that President Latiolais, President-Elect Heard or our distinguished visitor, Dr. Svend Aage Schou might be presenting, I nevertheless went forward in this direction to present goals for hospital pharmacists as I see the need and opportunity.

Recruitment

A goal for each active member of the ASHP should be to act as an individual recruiting service. This recruitment effort must be developed in two areas. First is recruitment of high school students into our schools of pharmacy, and second is recruitment of above average pharmacy students into hospital pharmacy practice.

There is need for cooperation with the guidance counsellor in the senior high school. This cooperation can be obtained through personal discussions, through visitation to the school and discussion with the students about pharmacy in general and its future, or it can be by invitation of selected students to the hospital and hospital pharmacy. In this latter case, the recruitment effort often overflows into the total hospital recruitment picture.

Your recruitment efforts at the pharmacy school level are needed even more where there is no formal hospital pharmacy program or where there is not a specific member of the faculty assigned to discuss this subject. In the present academic year at the Philadelphia College of Pharmacy and Science, Jefferson's Director of Pharmacy Service addressed the freshman class for an hour on hospital pharmacy practice. In the sophomore class, our pharmacists are participating in a hospital pharmacy symposium presented by selected sophomore students who had previously visited our hospital pharmacy and obtained necessary background data. For junior and senior students the course "Hospital Pharmacy Orientation" has been offered as an elective. This course, carrying two semester credits, provides a one hour lecture per week and also a weekly two hour laboratory period in the hospital.

Standards for Hospital Pharmacy Orientation Program

A goal for hospital pharmacists should be the establishment of a formal standard for presenting an orientation to hospital pharmacy practice to the third year students in the five year program or to the fourth year students in the six year program. There should be established a subcommittee of the Committee on Minimum Standards which should develop formal syllabi for lecture courses titled, "Hospital Pharmacy Orientation," carrying one or two credit hours.

There is need also for laboratory periods for this course. These should carry either two or four credit hours, and syllabi are required for each.

Ten years ago in 1951 a special committee under my chairmanship, prepared a syllabus for the course, "Hospital Pharmacy Administration." This course was to be given to persons majoring in hospital pharmacy practice. This course syllabus needs to be updated, and should be modified in light of the syllabus for the

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Presented as the Harvey A. K. Whitney Award Lecture, at the Whitney Award Dinner, 1961 Annual MEETING OF THE AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, Hotel Sherman, Chicago, Illinois, April 25.

course in hospital administration given to students majoring in hospital pharmacy.

Although many educators have adopted the "Hospital Pharmacy Administration" course herein and modified it to the needs of junior and senior students, there is need for committee-type thinking and idea-exchange to provide the most effective and stimulating orientation to hospital pharmacy practice. There is not the need for detailed subject matter as would be covered in the more detailed courses, "Hospital Pharmacy Administration" and "Hospital Administration."

Standards for Internship and Residency Programs

A goal for hospital pharmacists should be the revision and up-dating of the *Minimum Standard for Pharmacy Internship in Hospitals.* A further goal should be the establishment of an approval or accreditation program for pharmacy internship and residency programs in hospitals.

Such an approval program has been in the offing for entirely too many years and has not been formalized or made effective. Even after the first year of such a program, there will still be much to be accomplished in weeding out those programs which basically do not provide educational opportunities. Further, improvements will be required in many of the existing programs which have the potential as educational opportunities. It is my opinion that at this moment there are only a few pharmacy internship or residency programs in hospitals that are truly educationally oriented, and that give the student a broad perspective in hospital and hospital pharmacy practice.

The Professional Doctor of Pharmacy Degree

Since 1947, the Philadelphia College of Pharmacy and Science and the Jefferson Medical College Hospital have been offering a cooperative program in Hospital Pharmacy Administration leading to the Master of Science in Pharmacy Degree. These two institutions and comparable institutions in a neighboring city were the first institutions in the United States to offer such a cooperative program. In the years during which this program has been offered, there has been criticism due to the fact that essentially the Master of Science Degree in Pharmacy, with the major in hospital pharmacy, has become a terminal degree program.

The Pharmaceutical Survey in 1948 established the need for a six-year program leading to the professional degree of Doctor of Pharmacy. This has provided stimulus to delete the Master of Science degree and to replace it with the professional Doctor of Pharmacy degree. *As a goal for hospital pharmacists,* I would urge adoption of this professional degree for specialists in hospital pharmacy. This could be accomplished through an elective six year program in the schools now offering a five year Bachelor of Science program. Schools now offering the professional Doctor of Pharmacy degree should develop an expanded curriculum with major emphasis on hospital pharmacy administration. In this area there is need for lecture courses of one or two semester credits in the following subjects:

A. Hospital Pharmacy Administration
B. Hospital Administration
C. Central Sterile Supply Administration
D. Hospital Pharmacy Seminar
E. Hospital Pharmacy Survey
F. Hospital Accounting
G. Personnel Supervision

The ASHP presently has an approved syllabus for a course in "Hospital Pharmacy Administration" and I am pleased that I was chairman of the Committee that proposed this ten years ago. This syllabus must be updated and there must be a syllabus for the several other courses indicated. Here are additional goals for hospital pharmacists.

The Pharmacy and Therapeutics Committee

A goal for hospital pharmacists should be to insure that the pharmacy and therapeutics committee is truly representative of all services in the hospital. Recently I presented a "Review of Pharmacy and Therapeutics Committee Regulations" to the A.A.A.S. meeting. The paper indicated that in too many hospitals there was a pharmacy and therapeutics committee that had only two or three physicians as members. It is difficult to assume that such a committee is truly representative of all medical staff services.

At the Jefferson Medical College Hospital, the Pharmacy Committee of the Attending Medical Staff is composed of three physicians all of whom are department heads. Additionally, however, there has been formed an Advisory Subcommittee to the Pharmacy Committee. This is composed of a physician appointed by the head of each of the fourteen departments or services of the Medical Staff. Every month an agenda is reviewed by each of these individuals, and recommendations are made to the parent committee. Such a committee can carry out additional functions other than the counselling on the basic pharmacy department operations. This becomes a truly representative Pharmacy Committee and, I believe, functions as the ultimate type of operation for which we strive.

The Hospital Formulary System

The *Statement of Guiding Principles for the Operation of the Hospital Formulary System* as approved by the Board of Trustees of the American Hospital Association and the Executive Committee of the ASHP should serve as the basis for *a goal for hospital pharmacists.* In a "Review of Pharmacy and Therapeutics Committee Regulations" which I presented recently, there were many indications that the Formulary Sys-

tem as outlined in this statement of guiding principles is not carried out in all hospitals. In many hospitals the Formulary System is based upon an administrative decree by either the hospital administrator or the director of pharmacy service, thus not permitting the medical staff an opportunity to cooperate in establishment and maintenance of the Formulary System.

This is an extremely undesirable situation and must be overcome immediately. Where a hospital pharmacist observes such a situation in a nearby hospital, he should accept the responsibility to discuss this with the director of pharmacy service in that hospital and to acquaint him with the *Statement of Guiding Principles.* If this provides no relief, then the pharmacist should present the facts to his local hospital pharmacy association for consideration.

A majority of us have a high regard for and are concerned with maintaining the integrity of the Formulary System in our hospitals. We cannot allow any one hospital pharmacist or hospital administrator to discredit the Formulary System.

A Purchasing-Quality Control Program for Pharmaceuticals

Over the past few years, I have been privileged to speak on several occasions on the need for a purchasing quality control program for pharmaceuticals. I present as *a goal for hospital pharmacists* establishment of such a program.

In many pharmacy publications which present a composite news picture, there appear increasing references to the use of so-called generic equivalents. Just as these discussions have been on the increase, so has there been an increase in the number of small pharmaceutical manufacturing companies which have been offering drugs at extremely low prices. There is no basis for purchase from these companies other than the fast talking salesman's guarantee that no other company offers a lower price.

Pharmacists in state government hospitals have advised me of their concern as to the quality of products purchased by the state purchasing agent and over which the state hospital pharmacist has no control. I have observed a desirable purchasing quality control program instituted at the Los Angeles County General Hospital, and I understand that a similar program is being instituted at the Philadelphia General Hospital. At the Jefferson Medical College Hospital, the hospital attorney has almost completed his review of a total purchasing quality control program for pharmaceuticals. I hope to present this information to a future meeting of the ASHP.

There is need to establish a special committee of the Society to study means of adopting a nation-wide system whereby hospital pharmacists could evaluate local sources of supply. Through such a procedure, hospital pharmacists could eventually rule out the undesirable sources of supply. There would exist assurances that where a pharmaceutical company in Columbus, for example, offers a good price, a quality product is certain with each purchase since my associates in Columbus would have checked out the control and manufacturing facilities of this company.

At the most recent talk which I gave on this subject, Dr. Lloyd Miller, Director of Revision of the *U.S. Pharmacopeia,* posed the question as to whether the ASHP could carry out such an evaluation program. Here is a man known to all of us who has observed a problem and who is proposing a *goal for hospital pharmacists.*

Standards for Affiliated Chapters

A goal for hospital pharmacists should be the establishment of a minimum standard for each Affiliated Chapter of the ASHP. As a basis for this I would tell you that in the past year, under the able presidency of Mr. Thomas A. Manzelli, the Eastern Pennsylvania Hospital Pharmacists Association has revised its Constitution and By-Laws. One of the points in the new constitution is that there is only one category of membership, e.g., an *Active* member who shall be an A.Ph.A. and ASHP active member.

A point rating system is one of the many desirable features of the by-laws. This point rating procedure is similar to that proposed by the American College of Apothecaries. Points are given for attendance at the association meetings, for committee service, for attending professional meetings in the area or at other locations. There is a point schedule which, if not achieved over a three year period, will be the basis for loss of membership.

Our local association has a Board of Directors composed of the past presidents plus active members to the ratio of one board member for each ten association members. The Board of Directors serves with the following responsibilities:

a. "The Board shall be the advisory body of the Association.
b. "The Board shall hear all grievances, review all of the facts presented, obtain additional information as deemed necessary, and shall make its recommendations to the membership.
c. "The Board shall supervise and edit the official publication, *The Bulletin of The Eastern Pennsylvania Hospital Pharmacists Association.*
d. "Questions which may arise as to the fitness of any member to remain as a member shall be referred to the Board, which shall make an investigation in as private a manner as possible. If the Board deems the facts presented warrant action,

it shall notify the accused member by mail at least thirty days prior to the regular monthly meeting at which his case will be presented to the membership. The accused member shall have the opportunity to defend himself at this meeting."

Another part of the by-laws of this association concerns a survey program of the member pharmacies. The Board of Directors comprises the surveying group and makes recommendations where indicated. Where, in the opinion of the Board of Directors, these recommendations are not accepted or activated by the member, loss of membership may result.

Through increasingly active affiliation with the state and local hospital associations, the Eastern Pennsylvania Hospital Pharmacists Association is attempting to develop the status of its association as a professional body whose basic desire is to see established in all area hospitals a minimum standard of practice for pharmacy service in these hospitals. The day is not far off when it will be a privilege for a Philadelphia area hospital pharmacist to hold membership in this association. Soon we anticipate that the area hospital administrators will *require* their pharmacists to hold membership in this association.

In order to stabilize the chapters where there is a large membership, it is desirable to incorporate as a non-profit association. This incorporation is aimed at protecting the officers, executive committee and board of directors against any liabilities that are incurred by the association or any members.

We in Philadelphia believe that no other ASHP Affiliated Chapter has advanced to this high professional status. As a *goal for hospital pharmacists,* I recommend achievement of similar standards in each local chapter.

Before leaving the Affiliated Chapters I would paraphrase a statement made by President Kennedy in his inauguration speech, "Ask not what your association can do for you—ask what you can do for your association." Here is another *goal for hospital pharmacists.*

Fellows of the ASHP

A previous Whitney Award Lecturer proposed the status of Fellow of the ASHP. As a goal for hospital pharmacists, I support this proposal. Once established, Fellowship in the Society would provide a goal for new members. Achievement of Fellowship would be indication that the recipient has contributed significantly toward the development or improvement of hospital pharmacy practice.

In my present position as Assistant Director of Jefferson Medical College Hospital, I am faced with the responsibility to become a member of the American College of Hospital Administrators. Although I am a registered pharmacist, and have practiced almost all of my years in hospitals as a pharmacist, I am now practicing as an administrator with pharmacy service being one of my administrative responsibilities. If I am to make progress as an administrator, I must become a Member and eventually a Fellow of the American College of Hospital Administrators. The objectives of this association are indicated partially in the College's Articles of Incorporation as follows:

"1. To elevate the standard of hospital administration.

"2. To establsh a standard of competence for hospital administration.

"3. To develop and promote standards of education and training for hospital administrators.

"4. To educate hospital trustees and the public to understand that the practice of hospital administration calls for special training and experience.

"5. To provide a method of conferring Fellowship in Hospital Administration on those who have done or are doing note-worthy service in the field of hospital administration."

There are three types of memberships in the American College of Hospital Administrators as follows: Nomineeship, Membership, and Fellowship. I am presently applying for Nomineeship in the College. This status is granted to those persons who have fulfilled all of the requirements for admission to the College as are presented. Membership may then be granted to those persons who have been Nominees in good standing in the College for at least two years and who have fulfilled technical requirements for advancement. These requirements include successful completion of both an oral and written examination authorized by the Board of Credentials and in all other respects complying with the constitutional provisions for this status. Fellowship is awarded to persons who have been Members of the College in good standing for at least five years and who have been found technically eligible for advancement to Fellowship by the Board of Credentials of the College. To be eligible for Fellowship status the candidate must have submitted an acceptable Fellowship Project. The project may be a thesis, four case reports, a bibliography of four published articles, or any combination of case reports and bibliography totaling four. In addition, the applicant must comply in all other respects with the constitutional provisions of the College for Fellowship.

I have elaborated upon the several areas of membership and specifically Fellowship in the A.C.H.A. because I see in this a *goal for hospital pharmacists.* This goal has been proposed before and I hope that

a special committee will be established to give careful consideration to this. I propose Harvey A. K. Whitney as the first Fellow of the ASHP although this honor may only be awarded posthumously.

The goals which have been presented up to the moment have concerned our professional practice within the hospital. There are two areas of community participation through which hospital pharmacists can make a contribution because of their professional skill and knowledge.

Participation in Health Organization Activities

A goal for hospital pharmacists should be to strive towards representation and more seriously towards participation in activities concerning the operation of health institutions, agencies and programs. Certainly this takes personal effort and time but this is a responsibility that we must accept as a professional person. Hospital pharmacists, either representing their specialty or representing the profession as a total entity, should seek increased representation and active participation on local, county and state public health organizations or advisory units.

As an example I would cite the Philadelphia story. The County Medical Society has a Committee on Disaster Medicine Health Council. A hospital pharmacist has represented the profession of pharmacy on this committee, together with representatives of the other health professions and services. Hospital pharmacists have been instrumental in founding a joint committee of the several pharmaceutical organizations in the Philadelphia area, with purpose to coordinate the efforts of these organizations for the betterment of the profession. Hospital pharmacists have actively cooperated with the City Department of Community Health in its accidental poisoning prevention program and have given several hundred talks to community groups on this subject. There is more that could be offered for illustration, but time does not permit.

Community Contributions

As previously mentioned, in our Philadelphia area some more local hospital pharmacists have offered their services in providing talks to community groups on "The Problem of Accidental Poisoning in the Home." These talks have been well received and at every talk the hospital pharmacist presenting the talk has been more than reimbursed by the active discussion which has ensued as a result. Hospital pharmacists have participated in other areas of community contributions as in serving on the local school board, in participating in church work, in one or more ways, and there are other areas where hospital pharmacists have made many community contributions. Here is a goal for hospital pharmacists and here is a fertile field in which few hospital pharmacists have attempted to make a contribution.

There are talks to be given to community service groups on the subject of the cost of drugs and the cost of hospital care, the need for polio shots, the value of disaster planning, etc. These are contributions to our profession and to our total hospital picture. They provide challenging enjoyable *goals for* those *hospital pharmacists* who can speak before an audience.

One point that has been proposed in our local area, is the establishment of a political action committee. We as hospital pharmacists have another goal in this area, one which has seen the surface barely scratched insofar as our specialty's contribution is concerned.

There are many other areas, but that demon *time*—how it ruins things for the speaker and the audience. In discussing these community and health organization contributions, I am reminded of the recent statement of President Kennedy which I paraphrase as follows:

> *You Serve the Profession, Not Yourself—for the Ultimate Benefit of Others. The Persons You Minister to Will Benefit Directly—and You Will Benefit Indirectly.*

Conclusion

I hope that I have paid Harvey A. K. Whitney due honor with this talk and with my professional career to date. At this point, I am reminded of the inscription that I noted over the Easter weekend when, with my family, I visited the U.S. Capitol. There in Statuary Hall is a statue of Dr. Crawford W. Long, pioneer in the use of ether for anesthesia. The inscription on the pedestal indicates:

> *"My Profession Is to me A Ministry Unto God."*

Oh if we could all believe in such a statement, what a more virile profession pharmacy would be. Here is another *goal for hospital pharmacists.*

Finally I suggest each hospital pharmacist accept one more statement as a challenging *goal for hospital pharmacists.* In his book called "A Way of Life," Sir William Osler wrote:

> *Happy is the man — and happy he alone*
> *He who can call today his own,*
> *He who secure within can say,*
> *Tomorrow, do thy worst — For I have lived today.*

TREATMENT OF HOSPITAL EQUIPMENT WITH BETA PROPIO-LACTONE

by S. H. HOPPER

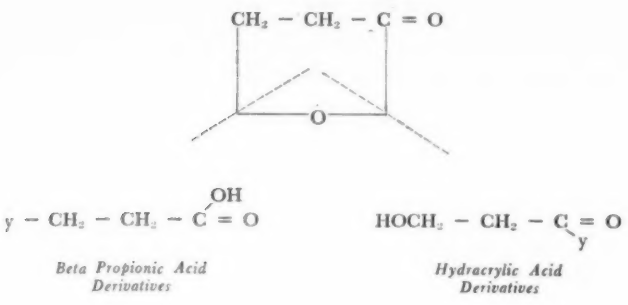
► ON FEBRUARY 25, 1958, Phillips[1] made the first public announcement of the bactericidal activity of beta propiolactone in the gaseous form. Since that time it has been used in the vapor state to sterilize a wide variety of materials. The recent paper by Bruch[2] provides an excellent summary of the literature and describes the use of BPL in the decontamination of rooms and large buildings. The following is a report of trials made with BPL at the I.U. Medical Center in order for us to become more familiar with the use of this chemical.

BPL has been reported in the literature as pungent, colorless liquid with the following physical properties: boiling point (760 mm. Hg.) 155°C (311°F); melting point -33.4°C (-28.1°F); density 20/4°C 1.149; vapor pressure (25°C) 3.4 mm. Hg.; water solubility 37 percent (by volume). In aqueous solution, BPL hydrolyzes to form hydracrylic acid, an isomer of lactic acid, and beta propionic acid derivatives. (Fig. 1).

S. H. HOPPER is Professor of Public Health, Indiana University School of Medicine, Indianapolis 7, Indiana.

Presented at the Annual Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, April 25, 1961.

FIGURE 1. Derivatives of BPL


BETA - PROPIOLACTONE
CH₂ − CH₂ − C = O
O
y − CH₂ − CH₂ − C(OH) = O
Beta Propionic Acid Derivatives
HOCH₂ − CH₂ − C(y) = O
Hydracrylic Acid Derivatives

The rate at which this takes place is a function of time and temperature[3] and is expressed as the half life. This is the time required to reduce the concentration of BPL to 50 percent of what it was. (Table 1.)

TABLE 1. Rate of Hydrolysis of BPL

TEMPERATURE		HALF LIFE
10°C	50°F	18 hours
25	77	3½ hours
50	122	20 minutes
75	167	5 minutes

BPL is toxic to the skin, eyes, and mucous membranes, and must be handled with extreme care. It is a lachrymator and is most unpleasant; however, it acts as its own warning system. According to Allen[4] it "produces no immediate or delayed effect on the skin provided it is washed off without delay. To the time of writing we have not encountered any case of sensitization." Compared with other chemicals used for air decontamination, BPL is 25 times more active than formaldehyde, 4000 times more active than ethylene oxide, and 50,000 times more active than methyl bromide. Under the conditions of use, BPL is non-inflammable and non-explosive.

Materials and Methods

a) Atomization of chemical was accomplished with a spinning disc type of machine,* which was turned on or off by means of a switch located outside of the room to be treated. The temperature of the room was maintained at a minimum of 75°F and spraying was not done until the relative humidity had been raised to at least 75%. The concentration of chemical used was approximately 4 mg. per liter of air, or 0.3 ml. BPL per cubic foot.

*Microsol, Mechanical Aerosol Fog Generator, Model 202, Manufactured by Silver Creek Precision Corp., Silver Creek, N.Y., and kindly loaned to us by Klenzade Products, Inc., Beloit, Wisconsin.

The BPL used was 97% pure,* and the room had a capacity of 2000 cubic feet. Cracks around the door were sealed with masking tape, and the machine was allowed to run until all of the BPL was atomized. We never experienced any difficulty handling the BPL so long as we kept it cold, and used ice water as the diluent for the atomizer. The room and its contents remained sealed for 24 hours.

b) Twenty-four hour cultures of staphylococci were swabbed onto 2" square samples of three different kinds of mattress covers. These were designated as, 1) hospital sheeting, a red rubberized material, 2) white rubber, having a smooth finish, 3) white plastic, having a rough pebble finish. The inoculated sample was placed in an open petri dish and exposed to the BPL vapor. After 24 hours, each sample piece was picked up with sterile forceps and placed inoculated side down, on sterile nutrient agar. The sample was then removed, and the agar incubated for evidence of growth.

The organisms used are listed below:

Beta hemolytic streptococcus, (Dept. of Microbiology, I.U. Med. Center).

Staphylococcus aureus 80 and 81. (Dr. D. W. Walcher, I.U. Med. Center).

Also F.D.A. #209, ATTC #6538 and the following coagulase positive strains of Staphylococci from the Microbiology Lab. of the Indiana State Board of Health (Courtesy W. A. Miller).

VA4	42	52	73
3A	42B	52 and 79	75
3B	42D	53	77
3C	42E	54	80
6	44A	55	81
7	47	70	187
29	47C	71	

A total of 27 strains.

Results and Discussion

Figures 2 and 3 are representative of the type of results obtained throughout the trials. In every case, the pieces of mattress material were sterilized, as shown by the absence of any colonies on the plates after treatment of the room and its contents with BPL. In addition, a window air conditioner was exposed to the BPL vapor and was sterilized by this treatment. We became more convinced of the claims in the literature concerning the efficacy of BPL, but remained a little uncertain about its universal application. This was because of the possibility of toxicity if its use is not very carefully supervised.

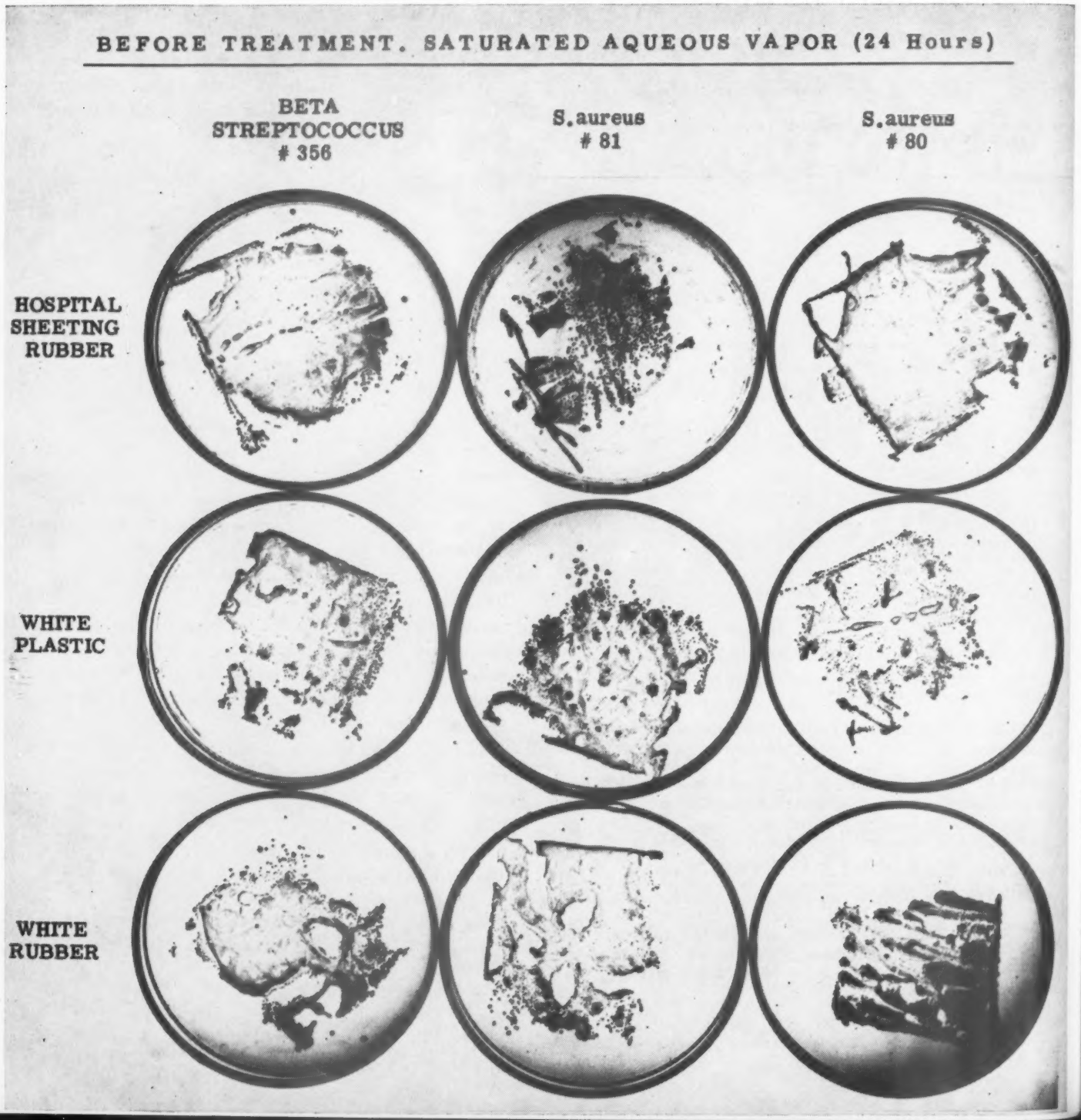
It may be of interest at this point to discuss the confused situation relating to the carcinogenicity of BPL. Walpole[5] produced local sarcomata in rats by subcutaneous injection of BPL. Roe and Glendenning[6] painted 2.5% BPL on the skin of mice for 25-30 weeks and produced some papillomata with no metastases. Single intravenous doses of BPL in amounts varying from 1-10 mg. did not produce lung tumors. On the other hand, at least one pharmaceutical manu-

*Purchased from Wilmot Castle Co., Rochester, N.Y.

facturer[7] has marketed a Rabies Vaccine (Duck Embryo), which is modified by the addition of 1:3000 BPL. This vaccine has been approved by the U.S. Public Health Service, since it meets the regulations pertaining to Biologic Products.[8] The Food Protection Committee of the National Academy of Sciences - National Research Council[9] notes that it is "currently impossible" to extrapolate from the levels of carcinogens in the diets of animals to safe levels for man. This is further amplified in a discussion entitled, "What is a Carcinogen."[10] Finally, Peck[11] corrects some popular misconceptions concerning the use of BPL. He points out that BPL in aqueous solution "is rapidly and completely decomposed into hydracrylic acid, a molecule differing from lactic acid only in the position of the OH group." He goes on to emphasize an important aspect of the use of BPL when he concludes that readers of *The Journal* (*J. Am. Med. Assoc.*) should be "aware that there is a distinct chemical and pharmacological difference between the beta propiolactone molecule per se and the products of hydrolysis of this molecule as they occur in vaccines."

As a consequence of these data, we have concluded that BPL can be used so long as it is handled properly. In order to avoid the chance of an accident in a patient area, we are planning to use BPL in a room far removed from the usual hospital activities. Two workers have been specially trained and will have full responsibility for decontamination of equipment. This

Fig. 2 shows bacterial growth on two inch squares of material before treatment with BPL



technique should prove to be a useful adjunct to the other methods in use for maintaining a hygienic hospital environment.

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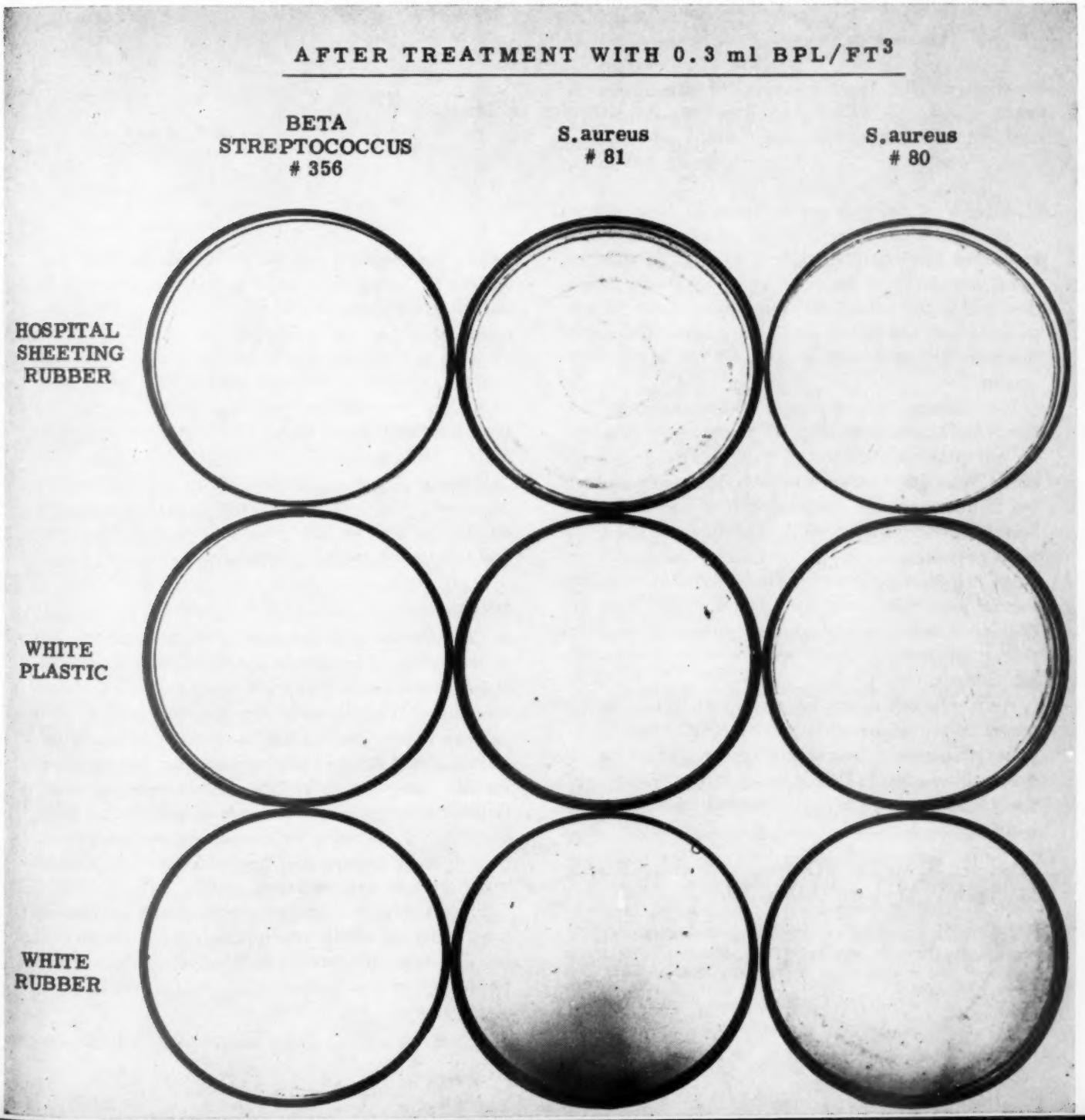
Fig. 3 shows sterilized materials after treatment with BPL. No colonies. Plates are sterile



a statistical comparison of PRESCRIPTION PRICES in retail pharmacies and outpatient hospital pharmacies

by MAXWELL H. MILLER

► AT ITS 1959 CONVENTION IN ST. LOUIS, THE National Association of Retail Druggists adopted a resolution calling for an end to prescription service to outpatients and also asked that pharmacists disassociate themselves from services in hospital outpatient pharmacies.[1]

It is obvious from the tenor of this resolution that the NARD feels that hospital outpatient pharmacies are unfair competition to the retail pharmacy. It is not stated how this "unfair competition" manifests itself but it may safely be assumed that a lower price for hospital prescriptions would constitute the most obvious criterium.

We felt that data proving or disproving any substantial price differential would be of value. With this in mind a survey was planned to provide prescription pricing information which would lend itself to statistical analysis.

We would like to emphasize that the results of this survey do not answer the question: "Do hospital outpatient pharmacies provide unfair competition for the retail pharmacist?" This is a complex question with many ramifications. Many definitions must be made before the question can be fairly asked. What constitutes an outpatient? Is he a clinic patient, an inpatient going home, or is he a walk-in patient? We must even define the concept of "hospital." Is a group of physicians practicing together in a clinic with beds and a pharmacy, a hospital? And finally, when these definitions are made we must then decide whether the patient is better being served by one form of pharmacy than by another.

What is hoped for in this survey is to provide a reasonable basis for stating that a significant price differential does or does not exist between drug store and hospital outpatient pharmacies.

Survey Design

The survey was designed to cover the entire United States. A total of 400 questionnaires were mailed, an equal number to hospitals and drug stores. Each state was sampled on the basis of population using a 1958 estimate of state population.[2]

A modified form of cluster-sampling was employed for the preparation of the hospital mailing list.[3] Government hospitals were rejected from the sampling procedure since the profit motive is absent and results in a distorted pricing schedule which would not lend itself to a comparative survey.

The drug store addresses were chosen at random from cities in which the hospitals were chosen.[4] It was felt that the overall variance would be reduced by the use of this method.

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This study was directed by EDWARD SUPERSTINE, M.Sc., who at the time of this study was Special Instructor in Pharmacy at the College of Pharmacy of Wayne State University, Detroit.

TABLE 1. Number Of Questionnaires Returned Out Of A Sample Of 400

States	Drug Stores	Hospitals (Total)	Hospitals with Outpatient Pharmacies
Alabama	2	1	0
California	6	7	7
Colorado	2	0	0
Connecticut	2	1	0
Delaware	1	1	1
Florida	4	4	3
Georgia	3	2	0
Hawaii	1	1	1
Illinois	3	4	3
Indiana	3	4	2
Iowa	0	2	1
Kansas	1	1	0
Louisiana	2	1	0
Maryland	1	1	1
Massachusetts	2	0	0
Michigan	3	4	1
Minnesota	2	1	0
Mississippi	1	1	1
Missouri	3	1	1
Nebraska	1	0	0
New Jersey	2	2	2
New York	3	1	1
North Dakota	1	0	0
Ohio	5	4	4
Oklahoma	2	1	1
Oregon	1	1	1
Pennsylvania	6	1	1
South Carolina	1	0	0
Tennessee	4	1	1
Texas	2	3	3
Utah	1	1	1
Vermont	1	1	1
Virginia	0	2	1
Washington	3	1	1
West Virginia	1	0	0
Wisconsin	1	1	1
Washington, D. C.	2	2	2
TOTAL: 37	79	59	43

Two questionnaires were prepared. One was labeled "Survey A" for the hospitals and that for the drug stores was labeled "Survey B." Separate questionnaires were prepared to prevent each pharmacist from knowing the purpose of the survey. It was felt that less bias would be incurred by following this procedure. In addition, slightly different information was requested from each group, as follows.

PRESCRIPTION PRICING SURVEY "A"

Purpose: To determine, on a nationwide basis, the comparative prescription prices of twenty commonly used prescription drugs.

1. What is the size of your hospital (in beds)? _____
2. Ownership of hospital? Religious_____; Fraternal_____; Group Practice_____; Private_____; Other (Specify)_____
3. Do you have a hospital formulary? Yes_____ No_____.
4. How many patients are seen in your clinic annually? _____
5. Do you regularly follow a pricing chart? Yes____ No____
6. Do you fill prescriptions for walk-in customers? Yes____ No____
7. Would you like the results of this survey made available to you? Yes____ No____. If yes, please write your hospital name and address on the back of this sheet.

PRESCRIPTION PRICING SURVEY "B"

Purpose: To determine, on a nationwide basis, the comparative prescription prices of twenty commonly used prescription drugs.

1. Do you regularly follow a pricing chart? Yes____ No____
2. Do any of the hospitals in your area fill prescriptions for walk-in customers? Sometimes_____ Yes____ No____
3. Do you consider this unfair competition? Yes____ No____
4. Would you like the results of this survey made available to you? Yes____ No____ If yes, please write your firm name and address on the back of this sheet.

The basic information was supplied by response to a list of 20 drugs. These drugs were chosen on the basis of the general popularity and their variance in cost, action, and form.

Please indicate your regular prescription charges in the blanks following each of the drugs listed below.

16 Achromycin V Capsules 250 mg. _____
20 Benadryl Capsules 50 mg. _____
16 Chloromycetin Capsules 250 mg. _____
20 Dexedrine Spansules 15 mg. _____
20 Diuril Tablets 500 mg. _____
20 Donnatal Tablets _____
20 Empirin Compound No. 3 Tablets _____
20 Equanil Tablets 400 mg. _____
4 oz. Terfonyl Suspension _____
20 Meticorten Tablets 5 mg. _____
20 Nembutal Capsules 0.1 Gm. _____
20 Pentid Tablets 200,000 Units _____
20 Phenobarbital Tablets 30 mg. _____
4 oz. Phenobarbital Elixir _____
20 Pyribenzamine Tablets 50 mg. _____
20 Orinase Tablets 0.5 Gm. _____
4 oz. Robitussin Syrup _____
20 Serpasil Tablets 0.25 mg. _____
20 Terfonyl Tablets 0.5 Gm. _____
20 Thorazine Tablets 25 mg. _____

The response to the survey was gratifying. The total response was 138 questionnaires (34.5 percent) or 79 drug stores (39.5 percent) and 59 hospitals (29.5 percent). This response of over one-third of all institutions contacted was larger than expected in view of the fact that no follow-up was possible in the short allotment of time. Questionnaires were received from 36 states and the District of Columbia. Hospitals represent 30 states and D.C.; drug stores represent 34 states and D.C.

TABLE 2. Drug Store Responses To General Questions

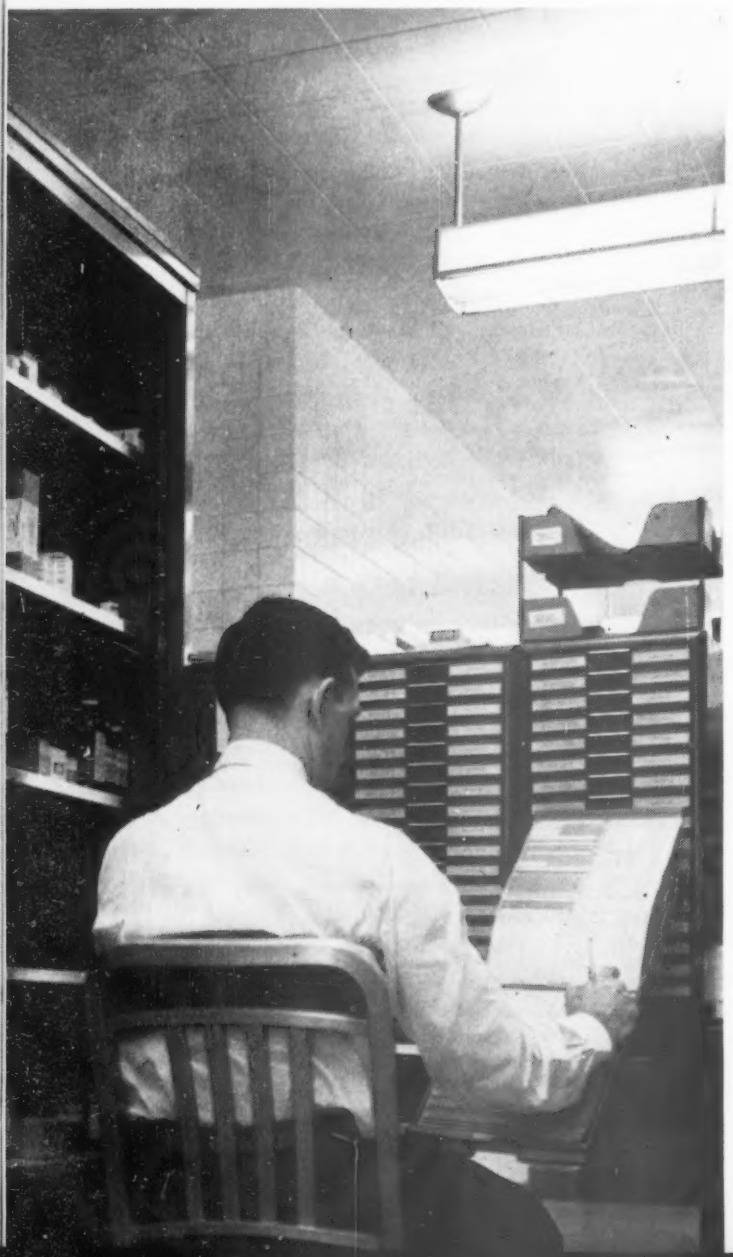
	Yes	No	Sometimes	No Response
Question 1	51	26	2	0
Question 2	23	32	15	9
Question 3	53	11	0	15

TABLE 3. Hospital Pharmacy Responses To General Questions

Question 1	Average size responding hospital was 200 beds. Range was 100 to 1000 beds	
Question 2	Religious	30
	Private	27
	University	1
	Fraternal	1
	Total	59

Question 4 No response was received from 38 hospital; 22 hospitals responded with a range of 1000 to 96,000 patients seen annually.

	Yes	No	No Response
Question 3	35	23	1
Question 5	38	19	2
Question 6	15	44	0



Response to General Questions

The answers to the questions (see Tables 2 and 3) are interesting and not too surprising. Two-thirds of the retail pharmacists feel that hospitals filling walk-in prescriptions provided unfair competition. About one-third of the retail pharmacists reported that hospitals in their area do fill walk-in prescriptions. Seventy-five percent of the hospital pharmacists report that they do not fill walk-in prescriptions. It perhaps may be postulated from these rather inconclusive statistics that, as yet, the problem of competition is not great. At the same time any increase in the number of hospital pharmacy outpatient prescriptions will undoubtedly result in increased feelings of friction on the part of the retail pharmacist.

Comparison of Prices

Table 4 lists the average (mean) price, standard deviation, and the number of reporting institutions for each of the 20 drugs. The "student" t shown represents a comparison between the drug store and hospital outpatient pharmacy averages.

The following statistical formulas were utilized to derive the data in Table 2.

1. a $\bar{X} = \frac{\Sigma f X}{N}$

b $\bar{X} = i\frac{\Sigma f x}{N} + \text{Assumed Mean}$

2 a $S = \sqrt{\frac{\Sigma f x^2 - (\Sigma f x)^2/N}{N-1}}$

b $S = i\sqrt{\frac{\Sigma f x^2 - (\Sigma f x)^2/N}{N-1}}$

3 $t = \frac{\bar{X}_1 - \bar{X}_2 - (\mu_1 - \mu_2)}{\sqrt{\frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}}}$

$\bar{X}$ = Arithmetic Mean (sample)
f = frequency
X = Individual price midpoint
x = Coded X
i = Interval between midpoints of price
N = Number of reporting institutions
S = Standard deviation
μ = Arithmetic Mean (Total population)

Discussion

It is apparent that for each drug but one—Orinase—the hospital average price is lower than the drug store counterpart. It is possible, however, that sampling bias may result in apparent differences which are not truly significant. The use of the "student" t statistic provides a means of statistically proving or disproving the significance of the difference of two sample means.

In this survey we posed the hypothesis that the hospital outpatient pharmacy average for each drug was not different significantly from the drug store average price. Any "t" figure larger than 1.98 indicates that this hypothesis must be rejected at the 95 percent confidence level. For 16 of the 20 drugs surveyed it is apparent that the "t" figure is considerably larger than 1.98. We must then assume that the hospital outpatient pharmacy averages are significantly lower than drug store counterpart.

If we may reasonably assume that our list of drugs is representative of prescription drugs, then we are in a position to state that on a nationwide basis, generally speaking, prescription prices are lower in hospital outpatient pharmacies than in a retail drug store. We may not infer however, that every hospital pharmacy is more economical than every drug store. There are cases where the reverse is true. But the trend does indicate lower hospital pharmacy prices.

We may summarize by stating that the survey indicates rather strongly that hospital outpatient pharmacies do charge less for prescriptions than do retail pharmacies. As we have stated earlier, these facts can provide only a partial basis for resolving the greater problem facing pharmacy as a whole. Pharmacy as a profession can grow and evolve by keeping in mind that its ultimate *raison d'être* is the patient. Charges of unfair competition are important only to the extent that the patient's needs are not neglected. The pharmacy which provides professional service in a professional atmosphere need fear little on a strictly "price" level.

Trygstad, Moravec, and others have truly stated the important fact that location, convenience to the patient and the physician, and professional attitude will lure the prescriptions far more than a difference in price.[5,6]

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TABLE 4. Comparison of Mean Prices, with Standard Deviation Charged for Twenty Selected Drugs by Outpatient Pharmacies of Hospitals and by Retail Pharmacies

	Hospital Outpatient			Retail Drug Stores			
Drug	N_2	X_2	S_2	N_1	X_1	S_1	t
Achromycin	41	$7.28	1.20	76	$8.00	.57	3.63
Benadryl	41	1.14	0.60	78	1.37	.36	2.25
Chloromycetin	41	7.28	1.20	76	8.00	.57	3.63
Dexedrine Spansules	40	3.19	1.07	78	3.43	.50	1.50
Diuril	41	2.49	0.96	78	2.71	.52	1.38
Donnatal	40	.76	0.51	78	1.26	.31	5.68
Empirin Compound No.3	36	1.85	0.79	78	2.18	.41	2.36
Equanil	42	2.40	0.44	78	2.65	.52	2.81
Terfonyl Suspension	31	2.05	0.74	73	2.45	.44	2.86
Meticorten	38	5.40	1.11	76	6.00	.63	3.09
Nembutal	40	1.20	0.62	78	1.56	.45	3.27
Pentids	36	3.80	1.09	76	4.00	.54	1.04
Phenobarbital (Tablets)	41	.71	.44	78	1.04	.25	2.89
Phenobarbital (Elixir)	44	1.01	.51	78	1 54	.33	6.24
Pyribenzamine	42	1.29	.65	78	1.57	.43	2.52
Orinase	41	2.99	.92	69	2.92	.45	.45
Robitussin	39	1.41	.56	77	1.86	.39	4.57
Serpasil Tablets	42	1.73	.76	78	2.10	.46	2.89
Terfonyl Tablets	31	1.47	.71	73	1.77	.43	2.21
Thorazine Tablets	41	2.31	.83	78	2.86	.71	3.62

N = Number of institutions reporting
X = Arithmetic Mean Price
S = Standard deviation
t = Comparison between the drug store and hospital outpatient pharmacy averages

a method for the effective ORAL APPLICATION OF LOCAL ANESTHETICS

by SISTER M. GONZALES *and* GERARD WOLF

► A SIMPLE EFFECTIVE METHOD of throat anesthesia that eliminates many of the disadvantages of the more traditional methods is the use of an anesthetic lollipop. Resort to this method resulted from observation of difficulties encountered when other measures were employed.

Effective throat anesthesia is especially desirable for the insertion of an air-way before major surgery. Insufficient anesthesia at this time may result in a laryngeal spasm. The two most common methods of anesthesia of the mucous membrane of the throat are painting or spraying with anesthetic solution of any of the agents which penetrate these membranes, and the use of the anesthetic troche. However, in these as in all procedures, new, improved, less involved methods are always being sought.

Spraying

There are several obvious disadvantages to throat spraying: (1) The anesthetic solution is bitter and the patients tend to either swallow it too quickly or spit it out. (2) A superficial type of anesthesia is obtained and the results are brief. (3) Spraying causes many to gag or retch. (4) If the throat is sprayed, it is difficult to gauge the amount of anesthetic solution absorbed. (5) Spraying often involves the use of costly equipment.

Presented to the Annual Meeting of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, Washington, D.C., August 1960.

SISTER M. GONZALES is Chief Pharmacist and GERARD WOLF is Assistant Chief Pharmacist at Mercy Hospital, Pittsburgh, Pa.

Anesthetic Troche

The use of the troche also admits to several uncertainties. Patients frequently either chew and swallow a troche immediately or lodge it in a buccal pocket for too long an interval. Since preanesthetic medications dry the mucous membrane, the patient experiences some difficulty in moving a troche about in his mouth. Thus the troche lying in the same position too long may, and sometimes does, cause necrosis of the tissue. There is the further and more serious problem of the troche being inadvertently inhaled.

The Anesthetic Lollipop

The anesthetic agent presented "on a stick" seems to be the answer to the problems created by the two methods just discussed. The automatic response of the patient to the anesthetic lollipop is immediately apparent. The patient takes the candy in and out of his mouth, usually swallowing after each withdrawal. Cooperation is assured as both palatability and novelty of the method attracts the patient. Dryness of the mucous membrane does not hinder its use. A more even distribution of the anesthetic is assured. The simplicity of procedure removes disadvantages of gagging and retching. The patient's willingness to use this agent assures a better anesthetized area and a

longer period of anesthesia. The anesthetist, moreover, is free to do other duties while the patient is using the lollipop. But most important of all, the insertion of the air-way is facilitated as a result of the deeper and more uniform anesthesia.

Other uses suggested for this type of medication are the following: (1) Providing relief following the extraction of teeth. (2) Preventing the "gag-reflex" when patients are becoming accustomed to new dentures. (3) Preparing the patient for the insertion of a Levine tube. (4) As an adjunct to throat examination of patients who experience difficulty when procedure of this type is indicated.

Choice of Formula

The anesthetic agent used in the following formula is tetracaine, chosen because it remains stable at boiling temperature and because it was the agent currently in use when the spraying method was employed. It was decided after a few experimental batches that a 0.5 percent solution added to the candy adequately met our needs.

For the candy base we went back to an old-fashioned New England recipe of the type once found bubbling on open hearths in frontier days. It gives the clear or hard candy familiar to us in childhood, especially at Christmas time.

Anesthetic Lollipops

1. Sucrose	240	Gm.
2. Light Corn Syrup	120	ml.
3. Water	60	ml.
4. Green Food Coloring	0.5	ml.
5. Soluble Lemon-Lime (MMR)	4.0	ml.
6. Tetracaine Hydrochloride	2.0	Gm.

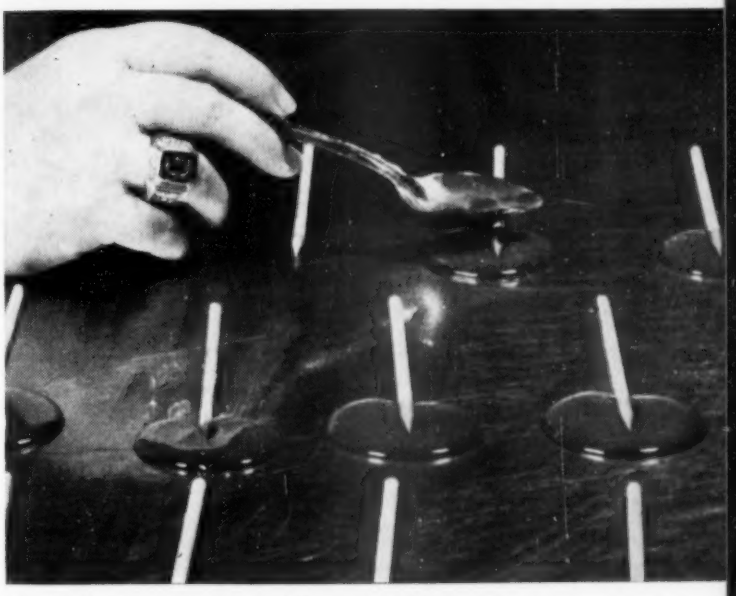
To make approximately 40 lollipops (0.5%), weighing 8 grams each.

PROCEDURE:

1. Combine the sucrose, corn syrup and 50 ml. of water.
2. Heat without stirring for 15 minutes over high heat. Reduce to medium heat and continue to cook for about an hour or until a small amount of the mixture separates into brittle threads when tested in very cold water.
3. Cool slightly, blend in the coloring, flavoring, and tetracaine hydrochloride dissolved in 10 ml. of water.
4. Place 40 skewers about 4 inches apart on the greased metal surface.*
5. Drop slightly cooled mixture from tip of teaspoon over end of skewer to form 2 inch rounds. (If mixture hardens before all are made, return to low heat to melt.)
6. When the lollipops are hardened, remove with the aid of spatula, dip in powdered sugar, and wrap each one in wax paper.

*Skewers are available from Forster Manufacturing Company, Inc., Farmington, Maine. (Item No. 1001—4½ x 11/64)

ACKNOWLEDGMENT. This work was conducted at Mercy Hospital Pharmacy, Pittsburgh, in cooperation with the Anesthesia Department and is the result of a personal communication with Dr. T. D. Whittet, Chief Pharmacist of the University College Hospital, Glower Street, London, W. C. I., at the request of Chief Anesthesiologist Dr. F. F. Foldes and Dr. R. Mullay.



Preparation of lollipops is shown as slightly cooled mixture is dropped from teaspoon over end of skewer

When lollipops are hardened, they are removed with aid of spatula

Finished product is wrapped in wax paper

ORDERS are ORDERS . . . or ARE they?

by E. Byron Smith

► TWO SERGEANTS were discussing the problem of enforcing discipline in the ranks during hazardous war time duty.

"Now Lt. Jones never seems to have any trouble," said one of the soldiers. "Whenever he asks his men to do a job, they're off and running. How do you think he does it?"

"Well," drawled the other three-striper with a smile. "The lieutenant knows two things—which orders the men will take . . . and which ones they won't. He gives the orders that they'll take."

Hospital pharmacists may nod in agreement with Sergeant No. 2. Department heads and other executive personnel in the hospital can take a lesson from the story. Some directives will be obeyed . . . but some directives won't. The problem is how to implement a policy or procedure so that it will be accepted rather than rejected openly or surreptitiously.

A directive may run aground by exceeding the limits of the code of the group to whom it is addressed. When this happens, active opposition results. Berrian and Bash[1] speak of this when they mention the "zone of acceptability" which an order must not transgress if it is to escape resistance.

To put it differently, our Lt. Jones apparently never exceeded the limits of acceptable orders to his men, or whatever they considered acceptable. They were not indifferent to him as a leader, but he did not transgress their "indifference" to orders to a degree which would have provoked their hostility. The orders, then, were within the zone of the men's acceptability.

To bring this concept to the hospital level, take this illustration. Suppose nurses in the hospital have been in the habit of making frequent trips to the Pharmacy and Central Supply with *stat* orders.

All at once on a bright Monday morning comes this order: *All nurses will refrain from going to Central Supply or Pharmacy during 'on duty' hours, in order that more nursing time may be devoted to patient care.*

In all probability this will be a somewhat unacceptable demand to nurses who have been in the habit of expediting patient care by giving personal attention to particular drug or supply problems. The rule will have crossed over the zone of acceptability.

The result? Some complaint, likely. This has come upon the nurses with a great deal of suddenness and they are unprepared for it. Perhaps they feel that it impugns their judgment or their professional integrity. A few may be openly hostile. Some may lodge formal complaints. One may declare that this is the final straw, and resign and go home, should she be secure enough to permit such luxury.

It might be supposed that during the supervisor's or head nurse's absence there could be an open breach of the rule. These, then, are the kinds of developments that might conceivably follow the "no leaving the floor" rule.

On the other hand, if preparation were made for the gradual control of the problem, opposition could likely be circumvented to a large degree. Suppose the matter were put another way, informally, by the department head.

"Patients require all the attention we can give them," she might say. "And trips to other parts of the hospital such as Central Supply and Pharmacy take valuable time that we might be giving to our patients.

"So whenever possible, send your *stat* orders by pneumatic tube and limit your pharmacy visits to problems requiring your personal attention."

In this more permissive way, less abrupt action would be intended to keep the order within acceptable bounds.

Perhaps it would be better still if no directive were given at all and the employees allowed to decide for themselves.

One teacher put it to his evening class of adults this way. "We'll have to do something to limit smoking," he said. "I'd like to hear your ideas so that we can have an understanding."

One man said he was for no smoking at all. In fact, he said, he'd quit the class if the smoking lamp were lit all semester. Another believed he could concentrate better if his pipe were lit. A third said he sat next to a pipe smoker in another class, and ". . . the thing sure does smell up the room."

Finally they decided the issue by themselves—no

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smoking in the classroom, except as a "tranquilizer" during final exams.

At any rate, the order that meets with compliance both in letter and in spirit is likely the order that is made easy to swallow, rather than one that is made a bitter pill. Or in the original wording again—it doesn't transgress the code of conduct, it stays within the zone of acceptability.

Actual disapproval of an order is not the only risk run when a rule is announced. Those orders which fall within the category of being "too hard to take" or not acceptable, also run the risk of hurting the leader's prestige,[2] of actually lessening his authority with the group for the very reason that the order has been ignored. The codes of the group present barriers to management, through or beyond which management may not pass.

Certain factors do have influence over the zone of acceptability, however. The manner in which the leader, i.e., department head or section head, is regarded—is one. So, if the group feels that the leader is working with their best interests at heart, members may try harder to accept the directive. If the leader is popular and enjoys confidence, sociologists say, this may be particularly true.

Too, the desired end may be accomplished in easy stages. The nurses were asked to reduce the number of their trips away from the floor. This conceivably could pave the way for a further, later request that the trips be abandoned altogether, with subsequent provisions made for a direct phone system to pharmacy, delivery of narcotics to the nursing station or other needed remedies to the particular situation.

The two requests incorporated into one, however, might well have violated the acceptability limits of the group. Broken into two components, the rule would be easier to obey.

In the hospital some very special problems in communication exist. Twenty-four hour operation, seven days a week, with "on call" personnel, auxiliary volunteer service and a constant admixture of rapidly changing patients, augmented by large numbers of visitors—find a taxing of communication channels. Many informal subgroups exist in the hospital.

A female worker is, say, first a hospital employee; second, a maid in the housekeeping department; third, she works on the 3 to 11 P.M. evening shift; four, she is of Hungarian descent. Thus, it can be seen that many possibilities exist for the formation of identities in the hospital with any of the sub groups, whether formal or informal, each capable of serving as a reference group for the individual worker.

The zone of acceptance then, may have to be considered in light of the fact that the language is not well understood. . . that the worker is present only on a part-time basis . . . that a certain attitude persists among housekeeping aides who work on the afternoon shift, or that our maid thinks that these attitudes prevail.

You will remember that our opening sergeant related that Lt. Jones knows what orders will be obeyed and which will not. If an order were issued by an executive gone slightly mad—saying that effective the following morning all nurses' uniforms must be dyed black—it obviously would find no compliance. It would not be seriously considered by the nurses. Even if it were entertained briefly, it would be rejected with great feeling. This is an extreme example of the kind of order giving with which we are concerned. It does point up the idea. Orders are orders, but they can go only so far before they are ignored by the workers.

These examples may give some impetus to executive personnel in hospitals, including department heads and head nurses, to do a bit of serious thinking about the kind of orders they have been issuing lately. It may lead directly to an evaluation of the kind of response evoked by the orders. Responses such as negligence, disregard, token acceptance of the directive, haphazard performance—could indicate that the order has exceeded the zone of acceptance for the particular employee or group involved.

"This department will have to be cleaned up," an administrative assistant told a nurse supervisor recently. "Your nurses have the time to dust the equipment and wipe down the shelves."

The suggestion that nurses don the garb of housekeepers violated the zone of acceptance for those registered nurses. Many nurses would object to performing what they consider to be housekeeping department functions. Not only is their time too valuable to be utilized in the housekeeping area., They feel justifiably that aside from obvious needs for personal cleanliness and obviously related professional responsibilities, the janitorial duties are not rightfully theirs.

The supervisor did not ask her nurses to do the job. She delegated the task to nonprofessional helpers and secured further help from a cooperative executive housekeeper.

In crisis situations, authoritative leadership is time saving and efficient. But in day to day operation, directives which go beyond what the group terms reasonable, are likely not to be tolerated.

"Effective next Monday, all hospital employees will brush their teeth with hospital issue tooth brushes." A silly order? Sure. But even so, a good reminder to post on the desks of hospital decision makers. It may prevent the issuance of some other, less ludicrous, but equally unenforceable edict in the future.

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a note on an ACTUATOR FOR AEROSOL EAR FORMULATIONS

by SEYMOUR M. BLAUG *and* WILLIAM M. HENDERSON

► Recently, the College of Pharmacy at the State University of Iowa, initiated a clinical project in conjunction with the Veterans Administration Hospital in Iowa City. It is the purpose of this project to study the utilization of pressurized formulations, especially medicated emulsions, in the treatment of ear infections.

The first problem encountered was the lack of commercially available actuators that would enable one to introduce a foam into a body orifice such as the ear. Such an actuator should meet the following qualifications:

1. The actuator should be rigid, if possible, so that the physician can direct the foam to the point where treatment is desired. Precise placement of a flexible actuator deeply in the ear was found to be a difficult manipulative task.

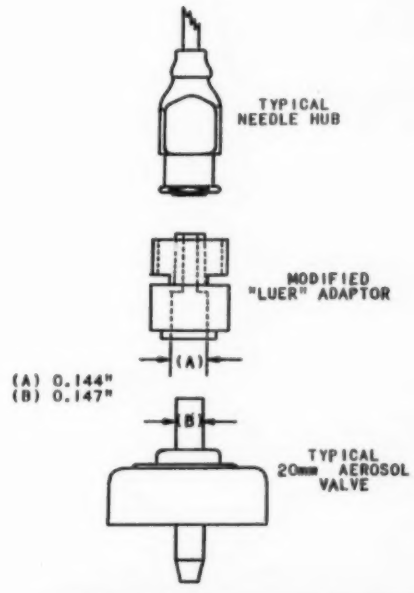
2. The actuator must be amenable to sterilization so that it can be used during surgical procedures. It should also be reusable.

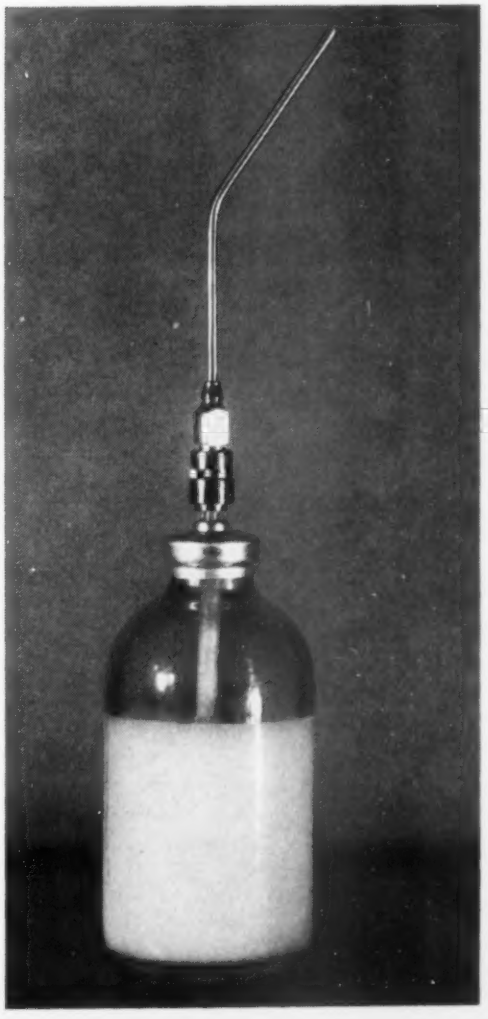
3. The valve and actuator should be easily manipulated with one hand. A rigid actuator mounted on a tilt top valve was found most convenient.

Flexible tubing of various types was studied clinically. However, it was found difficult to place and manipulate the tubing in the ear. The most adaptable device for introducing a foam into the ear was a large bore hypodermic needle modified by bending to the desired shape with the stylette in place. The stylette obviates the possibility of crimping down the lumen of the needle. The needle point was ground square and the edges beveled and polished.

Attachment of the needle to the valve stem was accomplished with a modified Luer adapter. The male fitting in the adapter was removed and the hole drilled to a diameter of 0.144 inches. The stem of a Risdon 20 mm. valve can then be inserted in the adapter where it is held by friction. The needle and adapter are easily cleaned and can be autoclaved along with other instruments. The needle and adapter assembly are shown in accompanying figures.

Materials: Risdon 20 mm. valve No. 4935, Wheaton plastic coated 2 ounce glass bottles, Luer adapter B-D No. 608/L, and B-D No. 466LNRH Tuohy 3 inch spinal needle, 16 gauge.





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Submitted from the State University of Iowa, College of Pharmacy.

Pennsylvania Board Announces Procedure for "Generic Drug" Prescribing in Hospitals

► THE PENNSYLVANIA STATE BOARD of Pharmacy announced today a new procedure for "generic drug" prescribing in Pennsylvania hospitals under a formula in which hospital patients will be the chief beneficiaries. The announcement of this policy was accompanied almost immediately by its approval and adoption in various leading hospitals, including the Hahnemann Medical College Hospital in Philadelphia.

The new regulations of the Pennsylvania State Board of Pharmacy, which became effective May 17, will permit hospital pharmacies to dispense a make of drug other than that prescribed so long as it is "generically or chemically equivalent." It is hoped that such a procedure will reduce the cost of drugs to hospital patients by allowing the hospital to purchase and stock larger quantities of fewer brands of drugs.

However, the Pennsylvania State Board of Pharmacy has attached *certain rigid conditions* to the use of this procedure by hospitals, in order to prevent the introduction of inferior drugs or drugs that will not have the effect desired by the prescribing physician. These conditions are:

—the physician's consent to such a procedure may not be used across-the-board to prevent him from requiring a particular brand to be dispensed when he feels that it is therapeutically superior to any other.

—the standards for determining whether any one brand of drug is generically or chemically equivalent to another, are not to vary from hospital to hospital. Rather, they must follow those prescribed in certain specified pharmaceutical publications, including that of the Pennsylvania State Board of Pharmacy.

—the generic system must not be an excuse for the purchase of "trash" or "junk"—that is drugs of inferior quality. The regulations specify certain standards for a sound quality control program for the purchase of a hospital's pharmaceuticals.

—the hospital pharmacist must provide an actual identification of the manufacturer of the "generic or chemical equivalent" either on the drug label or prescription. By thus allowing the hospital to trace the drugs which it stocks and dispenses, the regulations would enable hospitals to withdraw the drug from use should adverse information about the manufacturer or his products unexpectedly come about.

According to Sol S. Turnoff, Secretary of the Pennsylvania State Board of Pharmacy, the quality control program is particularly important in connection with the purchase of generic or chemical equals. "When you get away from the brand-named drugs and the large ethical manufacturers, the chances increase that you will be offered inferior drugs. One hospital in the area with a good quality control program discovered that nearly one-half of the drugs submitted for contract consideration failed to meet the official standards.

"These minimal regulations for quality control are so fundamental that opposition to them is like being against sin."

Mr. Turnoff also pointed out that Hahnemann Hospital's acceptance of the State Board's policy settled a long standing dispute between the two that was ready to be argued before the Commonwealth Court in Harrisburg. "Now that the Board and the hospital agreed as to what constitutes a safe formulary system in a hospital, there is no longer any point in arguing about the merits of what was done before."

He also indicated that both he and Board Counsel, Deputy Attorney General Morris J. Dean, are prepared to meet with and to assist any hospital which may be concerned over the details for implementing a generic or chemical equivalent program in their respective institutions.

Background

The background of the problem is as follows: Authorities reveal that the generic or chemical name of a drug is basically a name which reveals its chemical formulation. Therefore, in the very broad sense, drugs which are compounded in accordance with that formulation contain the same active ingredients and are deemed to be "generic or chemical equivalents."

For a variety of reasons, major drug companies give a brand name to each of their generically-named drugs. For example, prednisone is the generic name for a drug. Schering calls its prednisone product "Meticorten." Similarly, "Deltra" and "Deltasone" are the brand names of the prednisone product of, respectively, Merck Sharp & Dohme and Upjohn.

It is clear that the Pharmacy Law prohibits the substitution of one manufacturer's product or brand for that of another *without the consent of the prescriber.* Consequently, *in the absence of such consent,* a violation of the statute would exist even if the product substituted were "generically or chemically equivalent."

Regulations Interpreting The Requirement That Alternate Products May Not Be Dispensed By The Pharmacist "Unless . . . The Consent Of The Prescribing Physician Is First Obtained."

1. Notwithstanding the fact that a physician has prescribed or ordered a drug, compound or pharmaceutical by trademark, make or brand name, a pharmacist may dispense the generic or chemical equivalent of that product without the necessity of obtaining further specific authorization from the physician if the latter has expressly consented, in the particular prescription or medication order, to the issuance of the generic or chemical equivalent.

For purposes of this regulation, the drug, compound or pharmaceutical dispensed by the pharmacist shall be deemed the "generic or chemical equivalent" of the product prescribed or ordered by the physician if the therapeutic ingredients of the product dispensed comply, within official tolerances, with the standards of quality and quantity established, under the generic or scientific name, for the drug prescribed or ordered, by the United States Pharmacopeia, the National Formulary, the United State Dispensatory, the Food and Drug Administration of the United States Government or the Pennsylvania State Board of Pharmacy.

2. A pharmacist shall not be deemed to have complied with the requirements of Section 1 of this regulation if he has obtained the physician's consent in the form of an advance blanket authorization which purports to permit the pharmacist to dispense the generic or chemical equivalent of all products prescribed or ordered by that physician in the future.

3. For purposes of these regulations, the prescribing or ordering physician shall be deemed to have "expressly consented in the particular prescription or medication order to the issuance of the generic equivalent"—if the physician's request for the product has been entered on a prescription form or medication order which bears an imprinted instruction substantially in the following form:

> "Authorization hereby is given to dispense the generic or chemical equivalent (under the formulary system) unless the product prescribed is circled."

Provided, however, that the physician must be permitted to insist upon the issuance of a particular trademark, make or brand of the product prescribed or ordered by making a notation as aforesaid and without the necessity of submitting a special form of request for that product.

COMMENT: For the protection of the pharmacist involved, it is recommended that any form of the authorization permitted by Section 1 and any form of the type of printed order permitted by Section 3 be reviewed, prior to adoption, by the Pennsylvania State Board of Pharmacy, for a determination of whether or not said form adequately complies with the requirements of these regulations.

4. Where the generic or chemical equivalent is dispensed as provided herein, the pharmacist, in addition to complying with all other prescription and/or labeling requirements, on the label or prescription, must identify the manufacturer of the product so issued. If the product is dispensed pursuant to a medication order, the manufacturer's name must be specified either on the label or on the charge voucher.

5. Any pharmacist who, pursuant to these regulations, supplies a generic or chemical equivalent of the drug, compound or pharmaceutical prescribed or ordered, shall, on demand of the Pennsylvania State Board of Pharmacy, obtain and make available an assay and chemical analysis of the product dispensed. The assay and analysis may be obtained from the manufacturer of the product involved or from a laboratory registered or authorized to make analyses by agencies of the Commonwealth of Pennsylvania or the United States.

The pharmacist shall be deemed to have complied with this requirement if (a) the purchase order originally submitted to the pharmacy's supplier required the latter to make such an assay of the product and to supply a copy of the assay to the pharmacist or his institution upon demand and (b) the latter has requested the supplier to produce that assay for review by the Pennsylvania State Board of Pharmacy.

COMMENT: It is recommended that the pharmacist, from time to time, request and review such assays on his own initiative.

6. Pharmacists and pharmacies complying with the requirements of Sections 1 through 5 of these regulations shall be deemed to have first obtained the consent of the prescribing physician to their issuance of alternate brands or makes for the drugs, compounds or pharmaceuticals initially prescribed or ordered, within the meaning of the Act of October 6, 1955, P.L. 658.

Compliance with these regulations, however, shall not relieve the pharmacy or pharmacist of professional responsibility for filling the prescription or order in accordance with its terms.

COMMENT: Where a product is requested by the physician on a medication order and the physician has specified a particular trademark or brand of the same by making the notation as described in Section 3 of these regulations but the nurse, or other person, transcribing the order for transmission to the pharmacy fails to record the notation on the form presented to the pharmacist, the Pennsylvania State Board of Pharmacy will not prosecute or take disciplinary action against a pharmacist who dispenses a generic equivalent instead of the particular product specified by the physician if (1) the pharmacist has dispensed the generic equivalent without actual knowledge that the physician specified a particular product by appropriate notation and (2) it appears that the pharmacist, pharmacy or institution has made reasonable efforts, by memorandum, or otherwise—(a) to instruct the nurses or other personnel who transcribe medication orders of the significance of the aforesaid notation, and (b) to remind such personnel that such notations are to be recorded accurately on order forms presented to the pharmacy.

7. A prescription or medication order which specifies a product by generic name only, may be filled with any drug, compound or pharmaceutical which, within official tolerances, complies with the standards of identity established for that generic product by the United States Pharmacopeia, the National Formulary, the United States Dispensatory, the Food and Drug Administration of the United States Government or the Pennsylvania State Board of Pharmacy.

8. Sections 4 and 5 of these regulations shall apply in all cases in which products have been dispensed pursuant to a prescription or medication order specifying a drug, compound or pharmaceutical by generic name.

THE PENNSYLVANIA STATE BOARD OF PHARMACY
DOMINIC M. MANGANELLO, *Chairman*

Approved May 10, 1961
Effective and to be Released May 17, 1961
S/SOL S. TURNOFF, Secretary

FDA Investigation of Counterfeiting

► THE FOOD AND DRUG ADMINISTRATION today released the results of its nation-wide investigation of drug counterfeiting.

Almost 2,700 samples were collected from 900 drug stores selected at random between January 24, 1961 and March 30, 1961. Of these samples, 9 samples from 9 stores were found to be counterfeit. Six drugs were selected for sampling, all of them known from previous experience to have been counterfeited.

"Potentially, the problem is an explosive one and unless constant vigilance is maintained by law enforcing officials and tough enforcement pressure constantly applied, the problem could get out of hand to the detriment of public health and welfare. We have directed and are directing every available resource to the task of putting this racket out of business and to that end are planning a continuing, broad investigation.

FDA COUNTERFEIT DRUG SURVEY
TABLE 1. NATIONAL RANDOM SURVEY
(January 24, 1961 - March 20, 1961)
(Random sampling by prescription - Completed)

Number of Stores	Drugs	Number of Samples	Counterfeits	Source of Counterfeits
900	Diuril	464	0	
	Equanil	470	0	
	Hydrodiuril	462	2	Gen. Pharmacal
	Meticorten	428	4	2 unknown source 2 Gen. Pharmacal
	Miltown	448	0	
	Serpasil	424	3	1 unknown source 2 Gen. Pharmacal
TOTAL 900		2696	9	6 Gen. Pharmacal 3 unknown source
			Involves 9 retailers	

Commissioner of Food and Drugs George P. Larrick said that all of the counterfeits whose origin has thus far been determined, came from the General Pharmacal Co., Inc., Hoboken, N.J. Commenting on the results of FDA's investigation Commissioner Larrick said:

"Counterfeiting of new and potent drugs has been a recurrent problem of varying intensity for years. Our legal actions in this field date back to 1951. Because of the economic incentive and the lure of easy profits, the problem will recur.

"However, it has been and still is our view that the facts to date do not warrant disturbing sick people about the quality of the medications they have been taking. The survey results support this conclusion and indicate that the vast majority of our drugs are authentic. Still, the origin of counterfeits and the possibility that they have not been properly manufactured leaves us no room for apathy or complacency.

"Marketing of counterfeit drugs is a bootleg operation easily detected by the retail pharmacist. I again urge, as I did last October, that retailers insist upon receiving drugs only in original, sealed, manufacturer's packaging. The racket could not exist without the cooperation of unethical druggists."

General Pharmacal and Lowell Packing Co., Long Island, N. Y., and eight individuals have been charged with counterfeiting and distributing a variety of drugs, including two well known tranquilizers, in an action filed in United States District Court in Newark, N. J.

Another case, involving counterfeit Hydrodiuril manufactured by General Pharmacal Co., was filed in Chicago on March 17, 1961 against Americo Scala, a wholesale distributor for General Pharmacal, and Jules Gertz, salesman for Scala, for delivering the drug to Loyal Drug Co. and Lathrop Pharmacy, retail drug stores, in Chicago.

A third criminal action was filed on March 10, 1961

FDA COUNTERFEIT DRUG SURVEY
TABLE 2. NATIONAL INVESTIGATION
(Started August 1960)
(Selective coverage of suspect retailers — continuing project. Still in progress)

Number of Stores	Drugs	Number of Samples	Counterfeits	Source of Counterfeits
Approx. 250	Diuril	203	8	(2 unknown (6 Gen. Pharmacal
	Equanil	191	8	8 Gen. Pharmacal
	Hydrodiuril	174	5	5 Gen. Pharmacal
	Meticorten	110	12	11 like Gen. Pharm. 1 unknown
	Miltown	174	6	unknown
	Serpasil	168	20	6 unknown 14 Gen. Pharmacal
TOTAL 250		1020	59	

Involves 42 retailers

FDA COUNTERFEIT DRUG SURVEY
TABLE 3. WASHINGTON D. C. RANDOM SURVEY
(Completed in Jan. - Feb. 1961)

Number of Stores	Drugs	Number of Samples	Counterfeits	Source of Counterfeits
100	Diuril	46	0	All Authentic
	Equanil	70	0	All Authentic
	Hydrodiuril	46	0	All Authentic
	Meticorten	28	0	All Authentic
	Miltown	35	0	All Authentic
	Serpasil	68	0	All Authentic
TOTAL 100		293	0	

in the Federal District Court in Boston against Saul H. Bogdanov of Roxbury, Mass., trading as Victory Pharmacal Co. Here again the counterfeits originated with General Pharmacal Co.

Other actions brought during the past nine months as a result of these investigations included three seizures of stocks of counterfeit drugs.

Selective coverage of suspected retailers, which is still in progress, has revealed that 59 out of 1,020 samples, or 5.8 percent collected were counterfeit. Most of them came from General Pharmacal.

In addition to those surveys, a special random survey of Washington, D. C., drug stores was conducted. A total of 293 samples of the same drugs were collected at 100 stores. All proved to be authentic.

The drugs covered in all surveys were Diuril and Hydrodiuril (Merck, Sharpe & Dohme), Equanil (Wyeth Laboratories), Miltown (Carter Products Co.), Serpasil (Ciba Pharmaceutical Corp.) and Meticorten (Schering Corp.). These drugs were selected because previous experience has shown them to be those most frequently counterfeited, and because volume of sales and other economic factors would make these drugs likely candidates for counterfeiting.

Of 91 analyses of counterfeit drug samples to date, 14 samples were found to be slightly below standards of potency generally required of such drugs, and two were substantially below this standard (73% and 76% of the declared potency of the genuine products).

A counterfeit drug is a drug which is manufactured for the specific purpose of being passed to—and by—the retailer when filling prescriptions as the product of another manufacturer. The great danger is that critically important medications do not pass through the safety clearance or manufacturing control procedures necessary to assure compliance with the Federal Food, Drug and Cosmetic Act and, therefore, there can be no assurance that they contain the kind or amount of the drug supposed to be present.

Counterfeit drugs are made in precise simulation of well known trade-marked and usually patented prescription items in great demand. The simulation extends even to the use of the same monograms appearing on the genuine and is so close the differences are discernable only by microscopic and chemical examination. Counterfeits are generally sold unlabeled, often in paper or pliofilm bags or in partially filled bottles. The distribution is always surreptitious.

Therapeutic Trends

edited by WILLIAM JOHNSON, *Bronson Methodist Hospital, Kalamazoo, Michigan*

Hydrobenzthiazide—A New Oral Diuretic

R. Ford in *Current Therapeutic Research 3*:107 (Mar.) 1961 presents the results of human pharmacologic and clinical studies with hydrobenzthiazide, a new oral diuretic compound. The potency of the drug was compared to a standard diuretic, meralluride (Mercuhydrin). The calculation of the potency estimation revealed that this drug is 1.3 times as potent as meralluride with the latter drug being administered intramuscularly. The increase in sodium excretion following a single optimum dose of 10 mg. reached its peak 4 to 6 hours following administration of the medication and had a duration of action in excess of 12 hours. Hydrobenzthiazide, 3-benzylthiomethyl-3,4 dihydro-6-chloro-7-sulfamyl-1,2,4 benzothiadiazine-1,1 dioxide, was found to be an effective saluretic agent with moderate potassium loss and is repetitively effective in edematous states of varied etiology and as an adjunct to antihypertensive regimens. Pfizer Laboratories supplied the hydrobenzthiazide for this study.

SYLVIA SCHMIDT

Prophylactic Treatment Of Migraine Headache And Histamine Cephalalgia With A Serotonin Antagonist (Methylsergide)

New methods of treating this age old syndrome called migraine are constantly being sought. In previous studies, perivascularly injected serotonin produced symptoms similar to migraine. It was therefore decided to try a serotonin antagonist between attacks to ascertain its effect, if any, in preventing subsequent attacks. The drug chosen was Methylsergide, methyl-lysergic acid butanolamide. Fifty patients were used in this study, conducted by Harris and reported in *Ann. Allergy 19*:500 (May) 1961. Forty five of the patients suffered with migraine headaches and five with histamine cephalagia. The beginning dosage was 2 mg. every four hours. Some side effects of nausea, vomiting and lightheadedness caused a reduction in the dose. After the dose of one tablet (2 mg.) three times daily had been taken for three days, the dose was finally reduced to one tablet (2 mg.) morning and night. In some cases the drug was taken with an antiemetic to reduce the side effects. Of the original 45 patients, 39 completed the study. Thirty of these reported no subsequent headaches after taking the drug. The study seems to show that serotonin is an important factor in the continuance of the migraine syndrome and in histamine cephalagia. A potent serotonin antagonist appears to be an effective and well tolerated agent for reducing the severity and frequency of attacks. The drug was supplied by the Sandoz Pharmaceutical Company.

RICHARD H. HARRISON

Evaluation Of The Repository Emulsion Treatment Of Ragweed Pollinosis

There has been increasing interest in this method of treating allergic respiratory disease. Fine and Abram did this study to compare the repository emulsion method with routine standard methods. They reported their results in *Ann. Allergy 19*:505 (May) 1961. Three milliliters of Atreol and 2 ml. of Falba were mixed and then sterilized in a Dri Clave. To this mixture were added the ragweed extract in varying strengths. The emulsion was formed by attaching two Luer-Lok syringes at right angles by means of a three way stopcock. The opening of the stopcock was adjusted so that the material would pass from one syringe to the other and back again 16 times per minute. Seven minutes were required to produce a homogeneous emulsion. A group of 183 patients were used in the study. All patients had good follow up studies and 170 had previous routine hyposensitization treatment. Thirteen were new patients with no previous ragweed extract injections. Systemic reactions were infrequent and of no clinical significance. This type of treatment was rated to be as effective as the routine standard treatment. Several advantages were noted which indicates this treatment to be a valuable adjuvant in treating ragweed pollinosis.

RICHARD H. HARRISON

Tropicamide, A New Cycloplegic Mydriatic

An 0.5 percent solution of tropicamide was found to be a very effective mydriatic preparation giving rapid and short-acting dilation. Maximum cycloplegia was attained with a 1 percent solution. Patients examined with this drug showed no evidence of dermatitis, toxic symptoms, nor subjective complaints according to Gettes, reporting in *A.M.A. Arch. Ophthalmol. 65*:632 (May) 1961. More than one instillation was re-

quired and it was found that examination must be performed 20 to 30 minutes after the last drop is instilled. Recovery of accommodation was rapid and the cycloplegic effect was gone in 2 to 4 hours, with complete return of accommodation within 6 hours. Tropicamide was supplied as Mydriacyl by Alcon Laboratories, Inc., Fort Worth, Texas.

KENNETH W. HUCKENDUBLER

Ro 4-1778/1, A New Analgesic

A controlled double-blind study was made comparing the effects of Ro 4-1778/1, placebo and dextropropoxyphene, in postsurgical orthopedic patients. Sixty mg. of the new analgesic provided relief of pain more frequently than did 60 mg. of dextropropoxyphene. Sadove *et al.* report in *Current Therapeutic Research 3*:201 (May) 1961 that there was no apparent difference in the duration of action of the two analgesics. Analgesia was also produced when the drug was given either intravenously or intramuscularly, but pain at the site of injection usually occurred except when the drug was administered IM into the gluteus. The drug used in the study was supplied by Hoffmann-La Roche Inc.

KENNETH W. HUCKENDUBLER

Mucolytic Expectorant Therapy With An Iodinated Glyceryl Ether

Because of its glyceryl ether moiety, iodinated glyceryl ether has certain properties not obtainable with iodide therapy alone. Outstanding in this respect is the muscle-relaxing and tranquilizing action, which was of particular benefit to pediatric patients. Iodinated glyceryl ether was used as a 5 percent solution over a period of one year or longer in a group of 100 patients. In effective dosage, the patient received a total daily amount of iodine of approximately 80-120 mg. The use of a mucolytic-expectorant agent is recommended whenever bronchial conditions are being treated with antihistaminics, bronchodilators, and antibiotics, as these agents may cause the sputum to become viscid and thereby will impede expectoration. A. Seltzer points out in *Ann. Allergy 19*:381 (Apr.) 1961 that this drug proved superior to potassium iodide in mucolytic-expectorant potency. It had a wider margin of safety and could often be used when potassium iodide was not tolerated. Iodinated glyceryl ether was supplied as Organidin Solution by Wampole Laboratories.

SYLVIA SCHMIDT

Thrombotest vs. One-Stage Prothrombin Time Determination

A comparative study of the Owren thrombotest and determination of the Quick one-stage prothrombin time is discussed by Moore and Beeler in *New Engl. J. Med. 264*:681 (Apr.) 1961. The thrombotest was found to be a practical, reliable control method for anticoagulant therapy. Results were similar to those obtained with the prothrombin time. Of the two tests, the thrombotest took slightly more time owing to the necessity for using siliconized glassware and the longer values obtained. Results suggested that the thrombotest reliably reflects anticoagulation and that it is sufficiently simple, rapid and economical to be practical.

KENNETH W. HUCKENDUBLER

Intramuscular Suxamethonium In The Conscious Volunteer

Intramuscular suxamethonium has been proven useful in producing muscular relaxation for both laryngeal intubation and surgery. The drug has been found valuable in cases of poor risk patients and in the presence of generalized convulsions. In these cases suxamethonium was given and the intubation done before anesthetizing the patient. The drug was also valuable in uncooperative children. To verify previous thoughts that suxamethonium does not penetrate the blood brain barrier and therefore does not have any effect on the central nervous system, Davidson and Eyal conducted this study. A trained medical observer was given the drug, unanesthesized, and later described its effects. The patient reported the effects of the suxamethonium through all its activity. The results of the test were reported in *Anaesthesia 16*:227 (Apr.) 1961. The results showed no drowsiness in the patient. Also the results of this test showed the absence of discomfort and of the desire to cough during intubation. This test also showed no recognisable penetration of blood brain barrier. There was no depressant effect on the central nervous system.

RICHARD H. HARRISON

Use Of Refrigerated Solutions During Transurethral Surgery

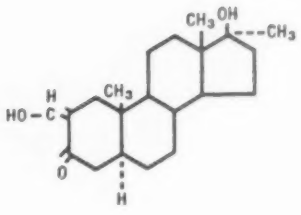
In a series of 109 patients, over an eight month period, refrigerated solutions (iced water or sorbital) at 36-40 degrees Fahrenheit were utilized in transurethral procedures. This study was initiated to evaluate the effect of refrigerated irrigating medium during transurethral surgery on loss of blood. In a group in which direct measurements of blood in the irrigating fluid was made, there was no evidence of a change in blood loss when compared to a similar group of controls. A rapid decline in rectal temperature appears to be the first sign of intravenous fluid absorption and precedes the rise in blood pressure. A direct correlation between blood loss and amount of prostate resected was obtained. Possible effects of local bladder hypothermia on bacteremia are discussed. This study was reported by Crockett *et al.* in *J. Urol. 85*:632 (Apr.) 1961.

WILLIAM E. JOHNSON

Timely Drugs

Anadrol

GENERIC AND CHEMICAL NAMES: Oxymetholone; 2-hydroxymethylene-17 alpha-methyl-17 beta-hydroxy-3-androstanone.



INDICATIONS: A synthetic steroid possessing about four times the anabolic effect and about half the androgenicity of methyltestosterone and used in geriatric debilitation, chronic underweight, pre- and postoperative conditions, convalescence from infections, gastrointestinal disease, osteoporosis and general catabolic conditions.

PRECAUTIONS AND CONTRAINDICATIONS: Masculinizing effects have been noted in adults or children and are reversed after discontinuing therapy. Caution in patients with heart disease because of possible sodium retention. Contraindicated in patients with carcinoma of the prostate, hepatic damage, nephritis, and nephrosis.

DOSAGE: Usual adult dose is 2.5 mg. three times daily, but doses up to 15 mg. per day may be employed. Optimal results usually obtained in 4 to 6 weeks. Dose for children up to 12 years of age is 2.5 mg. to 5 mg. per day. Children over 12 years of age may be given adult doses.

PREPARATIONS: Tablets of 2.5 mg. oxymetholone.

PACKAGING: Bottles of 50.

SUPPLIER: Syntex Laboratories, Inc.

Celestone

GENERIC AND CHEMICAL NAMES: Betamethasone; 9-alpha-fluoro-16-beta methylprednisolone.

INDICATIONS: Management of various allergic, dermatologic, ocular, rheumatic and other conditions known to be responsive to corticosteriod therapy.

PRECAUTIONS: Salt and water retention or excessive potassium loss are usually not associated with betamethasone, but in some instances diuresis may occur when patients are transferred from other steroids. Extreme precautions advised in patients with osteoporosis, marked emotional instability, peptic ulcer, tuberculosis and acute or chronic infections. No new or peculiar side effects; no increased incidence of untoward reactions.

DOSAGE:

CONDITION	INITIAL DOSAGE	MAINTENANCE
Rheumatoid Arthritis and Rheumatic Disorders	1.2 to 2.4 mg.	0.6 to 1.2 mg.
Acute Rheumatic Fever	6.0 to 8.4 mg.	as required
Disseminated Lupus Erythematosus	1.8 to 3.6 mg.	1.8 to 3.0 mg.
Status Asthmaticus	3.6 to 4.8 mg.	as required
Chronic Intractable Asthma	3.6 mg.	0.6 to 2.4 mg.
Intractable Hay Fever (Pollenosis)	1.8 to 2.4 mg.	as required
Allergic and Inflammatory Dermatoses	2.4 to 4.8 mg.	as required
Inflammatory Eye Diseases	2.4 to 4.8 mg.	as required
Pulmonary Emphysema and Fibrosis	2.4 to 3.6 mg.	1.2 to 2.4 mg.
Adrenogenital Syndrome	0.6 to 1.2 mg.	as required
Bursitis	1.2 to 2.4 mg.	as required

PREPARATION: Tablets, each containing 0.6 mg. betamethasone.

PACKAGING: Bottles of 30 and 100.

SUPPLIER: Schering Corporation.

Elavil

GENERIC AND CHEMICAL NAMES: Amitriptyline hydrochloride; 5-(3-dimethyl-aminopropylidene)-dibenzo (a,d) (1,4) cycloheptadiene hydrochloride.

INDICATIONS: Recommended for treatment of mental depression, such as manic-depressive reaction (depressed phase), involutional melancholia, reactive depression, schizo-affective depressions, neurotic depressive reaction, and target symptoms (anxiety, anorexia, psychomotor retardation, loss of interest, etc.). Possesses anticholinergic, antihistaminic, antiserotonin to a certain degree and adrenergic-blocking activities.

SIDE EFFECTS: Drowsiness, dizziness, nausea, excitement, hypotension, tremor, jitteriness, headache, heartburn, anorexia, increased perspiration, and skin rash. Numbness and tingling of the arms have been reported occasionally. Evidence of anticholinergic activity, such as tachycardia, dryness of the mouth, blurring of vision and constipation may occur. No reported evidence of drug-induced jaundice, agranulocytosis, or other serious toxic effects.

PRECAUTIONS: Activation of latent schizophrenia, epileptiform seizures in chronic schizophrenic patients and tendency to provoke mania or hypomania in manic-depressive

patients have been reported. High doses may cause temporary confusion or disturbed concentration. May potentiate other antidepressant drugs and caution advised when transferring a patient from amine-oxidase inhibitor agents to this drug.

DOSAGE: Initial oral dose is 25 mg. three times a day. In more severely ill patients, the dose may be increased by increments of 25 mg. preferably in the evening doses, such as 25 mg. with breakfast and lunch and 50 mg. with dinner and at bedtime. It is seldom necessary to exceed a total daily dose of 150 mg. Antidepressant activity may be evident within 3 to 4 days or as long as 30 days. Maintenance oral dose is 25 mg. two to four times daily or 10 mg. four times daily. The injection is administered intramuscularly at an initial dosage of 20 to 30 mg. four times a day, and the patient should be changed to oral medication as soon as possible.

PREPARATIONS: Tablets of 10 and 25 mg. amitriptyline hydrochloride. Injection, each ml. containing 10 mg., 10 ml. vials.

PACKAGING: Bottles of 100 tablets each; Injection in 10 ml. vials.

SUPPLIER: Merck, Sharp & Dohme.

Haldrone

GENERIC AND CHEMICAL NAMES: Paramethasone acetate; 6-alpha-fluoro-16-alpha-methylprednisolone 21-acetate.

INDICATIONS: Potent anti-inflammatory agent, approximately nine times as potent as hydrocortisone in ACTH suppression tests. Indicated in conditions known to be responsive to corticosteriod therapy.

SIDE EFFECTS: Electrolyte imbalance and edema are seldom accompanied during therapy. Minimum occurrence of untoward reactions, but side effects generally noted with other such steroids have been reported. Prolonged suppressive doses may elicit Cushing's syndrome.

PRECAUTIONS AND CONTRAINDICATIONS: Usual contraindications to corticosteroids apply. Should not be used in patients with active or suspected tuberculosis, active peptic ulcer, psychoses, or herpes simplex of the eye, except in selected acute life-threatening situations. Careful clinical judgment is indicated with patients with diabetes mellitus, infectious diseases, congestive heart failure, osteoporosis, emotional lability, diverticulitis or thrombophlebitis.

DOSAGE: Paramethasone acetate 2 mg. is equivalent to dexamethasone 0.75 mg.; 6-methylprednisolone 4 mg.; triamcinolone 4 mg.; prednisolone 5 mg.; prednisone 5 mg; hydrocortisone 20 mg.; cortisone 25 mg. Should be administered in 3 or 4 divided doses. To reduce from suppressive to maintenance dosage, it is advisable to lower the total daily dosage by 0.5 to 1 mg. every 3 to 5 days.

DISEASE	INITIAL SUPPRESSIVE DAILY DOSE (MG.)		MAINTENCE DAILY DOSE (MG.)
Rheumatoid arthritis	6– 8		1.5–4
Systemic lupus erythematosus	6–12		4–8
Asthma	6–12		2–6
Hay Fever	4– 8		2–4
Pulmonary emphysema	6–12		2–6
Skin diseases	6–12		2–4
Ulcerative colitis	6–12		3–6
Adrenogenital syndrome	1– 4		1–4
Nephrotic syndrome	6–12	3 days/week	4–8

PREPARATIONS: Tablets, each containing 1 or 2 mg. paramethasone acetate.

PACKAGING: 1 and 2 mg. tablets: bottles of 30, 100 and 500.

SUPPLIER: Eli Lilly and Company.

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Pharmacy-Central Sterile Supply Services

edited by MILTON W. SKOLAUT, *Chief, Pharmacy Department, Clinical Center, Bethesda, Maryland*

Ethylene Oxide Sterilization

► THE SUBJECT OF ETHYLENE OXIDE STERILIZATION will be covered in a series of articles, the first being a general survey. More specific portions, such as mode of action, toxicity, packaging, and equipment will be individually covered.

Various methods of sterilization have been used in hospitals for many years. Histories of sterilization procedures have been written and there is no need to repeat these. One method used by industry, but to a lesser degree in the hospital field, is ethylene oxide sterilization. This is a controversial subject within the hospital sterilizing field, and there are numerous articles advocating the excellent sterilizing capabilities of ethylene oxide, and others which state that it is not reliable. When these articles are studied in detail, and the reader eventually understands the points which they bring out, probably many are correct. This leads to additional controversies as to how all these conflicting opinions can be resolved.

One must then state that ethylene oxide sterilization can be reliable only if properly used in equipment correctly designed for use with this gaseous material. This becomes the key point in effecting sterilization by this means.

Properties

Ethylene oxide is a colorless, combustible gas at room temperatures, and boils at approximately 14°C. In addition to being used as a sterilizing agent in the hospital field, it is used as a fumigant for foodstuffs, tobacco, grain and other materials. Its vapors are generally considered highly toxic to insects in the above products, but it is relatively non-toxic to man in lower concentrations. It is non-corrosive and leaves no residue, odor, or taste in the items which are sterilized. In practice, sterilized materials are allowed to "air" after the period of exposure to the gas in order to allow the complete release of all residual gas.

Essentials for Effectiveness

There are published articles stating that ethylene oxide is not a good sterilizing agent; for example, Eisman[1] found that the sterilizing action of ethylene oxide against bacteria was incomplete in his particular test. The *Canadian Medical Association Journal*[2] published an article indicating that spores were not killed in the equipment used in this series of tests at the University of Toronto. In these tests the machine used failed to sterilize microörganisms dried on glass. Another example was a report by Walter and Kundsin[3] whereby they did not obtain sterilization in a table model sterilizer which was operated at room temperature and room humidity. These reports all present a common theme—the humidity or cleanliness of the material was not properly controlled. Kaye and Phillips[4] demonstrated that relative humidity had a definite effect on the sterilizing action of ethylene oxide. In the complete absence of moisture, microörganisms resisted sterilization by ethylene oxide, but by increasing the humidity to a range of 30 to 50 percent, sterilization was greatly improved. Beyond a humidity of 50 percent, sterilization again became less efficient. This is one of the basic requirements which must be accurately controlled in order to use ethylene oxide sterilization safety. This in turn demands the proper design and functioning of humidity controls in the sterilization equipment.

Other major considerations are the type of organisms to be killed, the cleanliness and packaging of the product, the concentration of the ethylene oxide gas within the chamber, and the temperature at which the materials and gas are maintained throughout the sterilizing cycle. Generally, pathogenic organisms are rather easy to kill if the material has been properly cleansed and packaged, and other conditions, such as the humidity and temperature, are properly controlled. However, spores are more difficult to kill. They can be killed consistently with proper functioning equipment. The greater difficulty in killing dried spores leads to their use as sterilizing indicators called "spore strips" used for testing the efficiency of the ethylene oxide sterilizers. Since these spores are harder to kill than the pathogens, it is assumed that if these spore test strips are sterile after exposure in the sterilizer, then the materials processed are also sterile.

As was mentioned earlier, the cleanliness of the product is important, as is the case with other types of sterilization. Proper packaging, allowing the gas to penetrate into the inner surfaces, is of utmost importance and cannot be over-stressed. The concentration of the ethylene oxide gas within the sterilizing chamber is, of course, variable, but there is a lower limit below which no kill will be obtained. A minimum of 300 mg. per liter[5] of ethylene oxide gas is estimated to be the lower limit at which a satisfactory kill can be obtained. Usually a concentration of 400 to 500 mg. of ethylene oxide per liter in an appropriate gas carrier is utilized. Higher concentration of 750 mg. or 1000 mg. of ethylene oxide per liter allows shorter exposure periods of down to two hours. The temperature during the sterilizing cycle must be maintained at a constant range at approximately 130°F. The reason for using reduced

temperature is that heat attacks products, such as plastics, at a temperature of over 160°F. The equipment should be able to maintain this degree of heat rather accurately since excessive overheating may injure the load contents, and underheating may cause failures in the sterilizing process. Heat variation will be obtained whether the sterilizer is heated with steam or electric strip heaters but it must stay within a safe range.

Mixtures Available

Ethylene oxide gas sterilizing mixtures are available in various concentrations. The gas and diluent must be non-corrosive and non-deleterious to the materials which are to be sterilized. The diluents mixed with the ethylene oxide gas have, upon occasion, been shown to be deleterious to some types of plastic materials, whereas the ethylene oxide in the concentrations used is not. Therefore, gas sterilization is a method usable for sterilizing a variety of heat labile items. The diluent may affect some plastic items and once the sterilizer is purchased this cannot be changed since the equipment is usually designed for a certain combination of gases. In addition, tightly sealed items may burst under the high vacuum which is drawn prior to the admittance of the gas to the chamber, and again at the conclusion of the cycle. This can usually be overcome by proper packaging. The residual gas left in the material is easily removed by simply aerating the product. Gas sterilization is most effectively used for central sterile supply or central service items and some heat-sensitive surgery items. A few drugs are being sterilized successfully with this method; however, this is not advocated for general use.

The sterilizing gas should be relatively non-toxic to humans or to animals. Generally, it has been considered that as much as 250 parts per million[6] of ethylene oxide within the atmosphere is not harmful to humans for a one hour period of exposure. It is fortunate for individuals working in the environment of ethylene oxide sterilizers that the gas itself provides a natural warning since it is irritating to the eyes and nose. When a person receives such a warning, the area should be vacated as soon as possible and aerated until it is free of ethylene oxide. The installation of this type of sterilizer is considered safe in a large or a well ventilated area so that if gas does leak out accidently, it will be well diluted and not toxic.

The types of gas combinations generally available on a commercial basis are: "Carboxide" and "Steroxide," a mixture of 10 percent ethylene oxide with 90 percent carbon dioxide, a relatively safe and inexpensive sterilizing gas and "Cryoxide," a mixture of 11 percent ethylene oxide with 89 percent halogenated hydrocarbons. This mixture of gas is more expensive; however, it is in smaller containers which are easier to handle and are disposable; also, it allows a much lower working pressure within the chamber of the sterilizing unit. Oxyfume-20, a mixture of ethylene oxide 20 percent with carbon dioxide 80 percent, is considered more toxic since it contains a higher concentration of ethylene oxide. This 20 percent mixture is considered to be explosive by many, but others will make no commitment as to its explosive nature. "Steroxide" 12 gas is a mixture of 12 percent ethylene oxide with 88 percent halogenated hydrocarbons. This mixture is only slightly different in composition from "Cryoxide." Functioning, cost and packaging are similar.

Various types of packaging materials can be used for outer wrappings for items to be ethylene oxide gas sterilized. This is an extensive subject that will be covered in a later issue.

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Sterile Urethral Catheterization Tray*

► RECENTLY COMMERCIALLY available are two disposable catheterization trays. One is shown in the accompanying photograph. It contains one waterproof underpad, one fenestrated drape, a 14 French plastic catheter, 5 absorbent balls, one aluminum foil packet of sterile lubricant, and a graduated plastic container. Each hospital must compare the overall cost of these trays with those now assembled within their Central Service to determine if the preassembled sterile tray will be economical.

* Pharmaseal Laboratories, Glendale, California.

CONTROL OF POISONINGS

edited by **ALBERT L. PICCHIONI,** *Director, Arizona Poisoning Control Program*

Use of Burned Toast as a Substitute for Activated Charcoal in the "Universal Antidote"

► THE USE OF ACTIVATED CHARCOAL has been widely recommended as an emergency first aid measure in the treatment of poisoning from certain chemical agents. A preparation, known as the "universal antidote," containing 2 parts of activated charcoal, 1 part of magnesium oxide, and 1 part of tannic acid is commonly employed. The charcoal adsorbs many alkaloids and other chemical agents such as phenol, mercuric chloride, and salicylates; magnesium oxide neutralizes acids without evolution of carbon dioxide gas; tannic acid precipitates certain alkaloids, glycosides, and heavy metals.[1,2] In the first aid treatment of poisoning from strychnine, the oral administration of the "universal antidote" in water is considered as the safest procedure prior to premedication of the victim with barbiturates.[3]

As a public service, some pharmacists prepare the "universal antidote" and distribute it *gratis* to patrons with an explanation of how and when to use it in cases of poisoning in the home. The preparation is also available commercially in many pharmacies (*e.g.* Res-Q). However, in many cases of poisoning in which the "universal antidote" is indicated as a first aid measure, the preparation is not available in the home. The use of substitutes for the activated charcoal, magnesium oxide and tannic acid in "universal antidote" has been suggested, namely, burned toast, milk of magnesia, and strong tea, respectively.[2,4,5,6] The administration of burned toast has been specifically recommended in the treatment of strychnine poisoning in children.[6] Although milk of magnesia and tea may be considered as useful alternates in the "universal antidote" formula, the substitution of burned toast in place of activated charcoal appears unjustified.

Lucas[1] has pointed out that the charcoal used in the treatment of acute poisoning "must be especially activated and that substituting ordinary charcoal or burned toast is folly." The extent of adsorption of a substance by charcoal is dependent both on the development of a large surface area in the charcoal and a conditioning or activation of its surface. In the manufacture of activated charcoal these properties are acquired by subjecting organic material (*e.g.* bone, blood, etc.) to high temperatures in the absence of oxygen (destructive distillation) and by treating the residue with an activating agent such as zinc chloride at high temperatures. Charcoal for medicinal use is also washed with acid and water to remove any inorganic matter that may be present.[7]

Lehman[8] has provided convincing evidence that burned toast is of no practical value as a substitute for activated charcoal in the "universal antidote." He compared the adsorptive capacity of 5 Gm. of pulverized burned toast with 1 Gm. of activated charcoal *N.F.* X in accordance with the requirements of the *United States Pharmacopeia* (*U.S.P.*).[9] In this test, the *U.S.P.* requires that 1 Gm. of activated charcoal adsorbs completely 100 mg. of strychnine sulfate from 50 ml. of water after 5 minutes of shaking with charcoal. Upon completion of this procedure, he measured the degree of adsorption by determining the median lethal dose (LD_{50}) of the filtrates by intraperitoneal injection in mice. The LD_{50} of the filtrate from the burned toast-treated strychnine sulfate solution was not significantly different from that of the control strychnine sulfate solution. The filtrate from activated charcoal-treated strychnine sulfate solution showed no toxicity.

It is important that only activated charcoal of a high standard medicinal quality be used in the treatment of acute poisoning, and it should meet the U.S.P. requirement for adsorptive power. Andersen[10] emphasized this point when he compared the adsorptive capacity of 2 different commercial activated charcoal preparations for several chemical agents and found one of the preparations to be one half as effective in adsorptive power as the other charcoal preparation. It should also be emphasized that activated charcoal must be preserved in well-closed containers. Because of its adsorbent power, it should never be kept exposed to the air. It will become unfit for use if subjected to the atmosphere of a laboratory or pharmacy.[11]

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Salicylate Poisoning: Treatment By Curarization And Controlled Respiration

► IN A RECENT CORRESPONDENCE TO THE *British Medical Journal,* Rees, Stead, and Bush[1] directed attention to previous publications concerning the treatment of salicylate poisoning by curarization and controlled ventilation. One of the references cited[2] discusses a case of salicylate poisoning in Great Britain, the cause and effect of major signs and symptoms, and suggested treatment. A six-year-old boy developed signs of salicylate intoxication following 11 days of sodium salicyate therapy (5 grams/day) for rheumatic fever. The symptoms observed included initial drowsiness, vomiting, and epitaxis; later observations included deep and somewhat rapid breathing (50/minute), coma, profuse sweating, and muscular tetany with spasmodic arching of the back accompanied by stiffness of the limbs. On the day of admission to the hospital the blood salicylate level was 66 mg./100 ml. Although this value fell to 40 mg./100 ml. during the second day of hospitalization, the patient's condition continued to deteriorate. Some blood chemical determinations were performed, but unfortunately neither serum *p*H nor carbon dioxide tension was estimated. However, because the patient was tetanic, he was presumed to be alkalotic, and alkalinizing solutions were not used. Therapy at this time consisted of an intravenous infusion of 1/5 normal sodium chloride solution with 5 percent dextrose and slow gastric milk drip, 1 pint per 24 hours. Calcium gluconate was administered intravenously in an attempt to control the tetany but was ineffective.

By evening, the patient was still comatose, tetanic spasm was almost constant, the temperature had risen to 102° F., and the respiration had become extremely deep and rapid (70 per minute). Attempts were made to conserve and increase his serum carbon dioxide concentration. Rebreathing through a length of corrugated rubber hose produced a slight fall in the respiratory rate and a slight decrease in rigidity of the limbs. Administration of mixtures of carbon dioxide, 5 and 10 percent, and oxygen decreased the respiratory rate somewhat but increased the force of the expirations; the rigidity and spasms of the limbs were diminished, but these effects were transient and severe tetany recurred. At this time succinylcholine was administered in an effort to reduce the excursion and the violent nature of the respiration. However, because neuromuscular blockade was incomplete, trismus persisted and difficulty was encountered in maintaining an airway. Consequently, complete neuromuscular blockade was induced by the intravenous injection of 10 mg. of tubocurarine. When the jaw was relaxed, copious mucoid secretion was aspirated from the trachea and bronchi, and controlled intermittent positive-pressure respiration was instituted; the patient was made to breathe oxygen and nitrous oxide, each of the rate of 3 liters per minute.

This treatment resulted in cessation of sweating; the pulse rate decreased from 140 to 100 beats per minute and the temperature fell from 101 to 99.4°F. Additional doses of tubocurarine were injected at intervals as needed to maintain curarization. Approximately 13 hours after initiation of controlled-respiration therapy, intermittent positive-pressure respiration was discontinued and the patient was placed in an oxygen tent. Shortly thereafter, the patient's breathing was normal in rhythm and depth and became stabilized at a rate of 24 per minute; the pulse rate was 110 per minute and the temperature was normal. However, coma persisted and the muscle tone of his limbs was still slightly increased, but there were no further spasms of tetany.

On the third morning the patient's blood salicylate level was 29.5 mg./100 ml. The intravenous 1/5 normal sodium chloride infusion was replaced by a 1/6 molar lactate solution because it was thought that the patient had entered the phase of metabolic acidosis. Furthermore, 2 grams of potassium salt was added to the gastric drip to correct for deficiency of this electrolyte. By the fourth morning the patient regained consciousness, although he was listless and drowsy. At this time his blood salicylate level was less than 5 mg./100 ml. Subsequently, improvement was rapid and eight days following admission he was discharged, completely recovered from the salicylate intoxication.

The rationale of using curarization and positive-pressure respiration in the treatment of salicylate poisoning is based on the concept that the major symptoms of intoxication are secondary to hyperventilation. For example, the elimination of carbon dioxide by hyperventilation rapidly induces respiratory alkalosis; and the state of alkalosis is apparently responsible for the development of tetany. Since tetany in salicylate intoxication is independent of blood calcium ion levels, it would not be relieved by the administration of calcium salts. Later, probably as the result of renal compensation (excretion of fixed cations), metabolic acidosis supervenes. Some observers have suggested that acidosis is due to the accumulation of organic acids and it has also been suggested that hyperactivity of the respiratory musculature contributes to acidosis. In

the case of children, it has been emphasized that the tremendous muscular exertion in hyperpnea will increase metabolic activity and, consequently, the body temperature. This muscular activity would also produce some degree of ketosis and sweating which, in turn, results in dehydration.

As early as 1945, Rapoport and Guest[3] reported that in dogs and monkeys experimentally poisoned with salicylates, barbiturate has the capacity to suppress hyperventilation and to restore the serum *p*H and blood carbon dioxide levels to normal. However, central depressants tend to enhance the toxic effects of salicylates on the central nervous system and, therefore, should not be employed in treatment of salicylate poisoning. On the other hand, tubocurarine has no significant central effect and appears to be a desirable alternative. Rees and colleagues[1] indicated that curarization and controlled ventilation will abolish all the major clinical manifestations of salicylate intoxication secondary to hyperpnea and that when the blood salicylate concentration has been reduced to a non-toxic level by the kidneys (10 to 18 hours) the patient will recover uneventfully. They further stated that under supervision of a skilled anesthesiologist this method of treatment seems to offer the great advantage of "counteracting the mechanisms by which life is endangered."

The method employing curarization and controlled respiration appears to be a promising development in the treatment of salicylate intoxication, particularly in severe cases. However, it would seem that additional clinical experience with this technic is needed in order to establish more definitely its value in the treatment of salicylate poisoning.

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Quinine Poisoning

► THE POISON CONTROL CENTER, Montreal Children's Hospital in Quebec, Canada[1] reported 2 cases of quinine poisoning. The victims were boys, 3 and 5 years of age. It was estimated that each of the children had ingested approximately 3 grams of quinine, in the form of chocolate-coated tablets. The children were not taken to the hospital until over 2 hours after ingestion of the drug. At the time of admission the children were convulsing. Paraldehyde was administered intramuscularly to control the convulsions and copious gastric lavage was performed. Mineral oil was administered by stomach tube to hasten passage of the quinine through the digestive tract. About 3 hours following ingestion of the drug, the children appeared well enough to be moved to a ward. But very shortly, thereafter, each patient developed cyanosis; the pulse became weak and rapid and the blood pressure was unobtainable. Despite the administration of oxygen and the injection of epinephrine, intracardially, cardiac arrest occurred in both children. Emergency thoracotomies were performed, oxygen was administered by intermittent positive-pressure respirators, and cardiac massage instituted. Exchange transfusion with fresh blood was employed in an attempt to lower the blood levels of quinine. The older boy responded favorably to the vigorous treatment and subsequently recovered with no signs of physical or mental impairment. On the other hand, the younger boy failed to respond to treatment and expired approximately 7 hours after the ingestion of quinine.

The fatal oral dose of quinine for adults is approximately 8 grams[2], but a dose as little as 1.2 grams has been reported to produce death in children.[3] Although most pharmacology and toxicology textbooks emphasize that quinine poisoning produces symptoms similar to salicylate poisoning, many fail to point out the depressant effect of quinine on the myocardium. Typically, the signs and symptoms of quinine poisoning may consist of tinnitus, visual disturbance, headache, flushing of skin, skin rash, mental confusion, low prothrombin blood level, diarrhea, decrease in body temperature, bradycardia, delirium, convulsions, unconsciousness, coma, collapse, circulatory failure. The heart is depressed and the blood pressure is low. Death may occur as the result of respiratory paralysis or cardiac paralysis or both.[4]

The recommended treatment for quinine poisoning consists of copious gastric lavage with water and alkaloidal precipitants, hypertonic sodium sulfate solution to hasten any unabsorbed poison through the bowel, support of blood pressure and respiration, and maintenance of renal function and body temperature.[2] Hillman and Harpur[1] further suggest that exchange transfusion is worth while and that it should be performed as soon as possible after ingestion of the drug. These clinicians emphasized that medicaments with extreme toxicity such as quinine should never be enteric coated or made palatable in any way. In support of this comment they point to the tropics where bitter quinine tablets are never coated and that despite intensive use of this drug in these areas, accidental quinine poisoning is virtually unknown.

References

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Drugs Subject to Federal Narcotic Law

issued by

TREASURY DEPARTMENT
BUREAU OF NARCOTICS
WASHINGTON 25, D. C.
General Circular No. 259

—*Published As a Reference for Hospital Pharmacists*

► FOR USE OF NARCOTIC OFFICERS and others concerned, the attached list summarizes and describes generally the narcotics of current interest in the drug trade, classified into their respective A, B, X or M categories.

Categories A and B are taxable drugs or compounds and must bear tax stamps; order forms are required for their transfer and the prescription of a physician for their dispensing. For any taxable drug, compound or preparation within the described limits of a Class B product the druggist may accept a physician's oral or telephoned prescription; all other tax stamped narcotics are Class A products under full control and a written, signed prescription must be in the pharmacist's hands before the drug or preparation may be dispensed.

Groups X and M are exempted preparations and need not be tax stamped. Although both are exempt, the two are distinguished from each other by the degree of exemption. Preparations of either group may be sold without a narcotic prescription, but only for bona fide medical use. Persons buying them for dispensing or resale must be registered (Class V-D) and must supply their registry numbers when purchasing. For Class X preparations records of all sales must be kept by suppliers; for Class M preparations only the original sale by the manufacturer need be recorded. Class X preparations require narcotic export permits for shipment to other countries; Class M preparations may be exported without narcotic export permits.

A narcotic-containing preparation which does not come within the described limits of either Class X or Class M (exempt preparations) is a taxable narcotic of either Class A or Class B.

No basic classes have been established under the Narcotics Manufacturing Act of 1960 for the manufacture of drugs designated thus (@) on the list. Their manufacture is, therefore, at present unlawful and their import is prohibited, except that small quantities may, upon special authorization of the Commissioner, be manufactured or imported for scientific research only.

This list supersedes that which accompanied General Circular No. 253 dated March 10, 1960.

H. J. ANSLINGER, *Commissioner of Narcotics*

DESCRIPTIVE LIST OF DRUGS SUBJECT TO FEDERAL NARCOTIC LAWS

Class "A" (Fully Controlled) Narcotic Drugs

(Require a written signed prescription)

I. Opium and its derivatives and compounds, including but not limited to the following:

(a) Raw, granulated, powdered, deodorized opium, tincture of opium, powdered or solid extracts of opium and opium preparations.#
(b) Mixed alkaloids of opium and their salts. (Pantopon, Spasmalgin)

II. Phenanthrene opium alkaloids, their salts, derivatives and compounds, including but not limited to the following:

(a) Morphine alkaloid, morphine salts, morphine compounds and preparations.#
(b) Diacetylmorphine or Heroin, its salts, compounds and preparations. (Manufacture, sale, distribution or possession is prohibited in the United States.)@
(c) Methylmorphine (codeine) and its salts.*#
(d) Ethylmorphine (Dionin) and its salts.*#
(e) Pholcodine (betamorpholinylethylmorphine), its salts, compounds and preparations.
(f) Dihydromorphine (Paramorfan) and its salts, compounds and preparations.
(g) Dihydromorphinone (hydromorphone) and its salts, compounds and preparations. (Dilaudid)
(h) Methyldihydromophinone (metopon) and its salts, compounds and preparations.
(i) Oxymorphine (dihydrohydroxymorphine), its salts, compounds and preparations.@
(j) Oxymorphone (dihydrohydroxymorphinone), its salts, compounds and preparations.
(k) Dihydrocodeine (drocode, Parzone, Rapacodin) and its salts, compounds and preparations.*#
(l) Dihydrocodeinone (hydrocodone) and its salts, compounds and preparations.*#
(m) Dihydrohydroxycodeinone (oxycodone, Eucodal) and its salts, compounds and preparations.*
(n) Benzylmorphine, its salts, compounds and preparations.@
(o) Morphine Methylbromide, its salts, compounds and preparations.
(p) Morphine Methylsulfonate, its salts, compounds and preparations.
(q) Desoxymorphine, its salts, compounds and preparations.@
(r) Dihydrodesoxymorphine-D, its salts, compounds and preparations. (desomorphine)@
(s) Methyldesomorphine, its salts, compounds and preparations.@
(t) Genomorphine (morphine-N-oxide), its salts, compounds and preparations.@
(u) Myrophine (myristyl benzyl morphine), its salts, compounds and preparations.@

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* See Class B for compounds permissible on oral prescription.
\# See Class X for compounds permissible as exempt preparations.
@ Manufacture not authorized; no Basic Classes for these drugs.

(v) Acetylcodone (acetyldihydrocodeine), its salts, compounds and preparations.@

(w) Thebacon (acedicone, acetyldihydrocodeinone), its salts, compounds and preparations.@

(x) Thebaine, its salts, compounds and preparations.

III. Cocoa Leaves, their alkaloids, derivatives, extracts or compounds, including but not limited to the following:

(a) Cocaine, its salts, compounds and preparations.

(b) Ecgonine, its salts, compounds and preparations.

(c) Tropococaine, its salts, derivatives, compounds and preparations.@

IV. Marihuana (Cannabis sativa), its derivatives or compounds. (Marihuana is not presently used for medicinal purposes in the United States.)@

V. Pethidine (isonipecaine, meperidine, Demerol, Dolantin), its salts, compounds and preparations.

VI. Opiates, their salts, derivatives and compounds.

1. Pethidine Group:

(a) Anileridine (Leritine, Lerinol), ethyl 1-[2-(p-aminophenyl)-ethyl]-4-phenylpiperidine-4-carboxylate, its salts, compounds and preparations. Proclamation No. 3139, June 7, 1956.

(b) Ketobemidone (Ketogan, Cliradon), 4-(3-hydroxyphenyl)-1-methyl-4-piperidyl ethyl ketone or 1-methyl-4-metahydroxyphenyl-4-propionylpiperidine, its salts, compounds and preparations. Proclamation No. 3074, October 18, 1954. (Production not authorized in United States.)@

(c) Properidine (Gevelina, Ipropethidine, Isopedine, Spasmodolosina), isopropyl 1-methyl-4-phenylpiperidine-4-carboxylate, its salts, compounds and preparations. Proclamation No. 3139, June 7, 1956.@

(d) Hydroxypethidine (bemidone, oxypetidin), 1-methyl-4-(3-hydroxyphenyl)-piperidine-4-carboxylic acid ethyl ester or 1-methyl-4-metahydroxyphenylpiperidine-4-carboxylic acid ethyl ester, its salts, compounds and preparations. Proclamation No. 2851, August 24, 1949.@

(e) Alphaprodine or NU-1196 (Nisentil, Nisintil, Prisiliden), a-1,3-dimethyl-4-phenyl-4-propionoxypiperidine, its salts, compounds and preparations. Proclamation No. 2851, August 24, 1949.

(f) Betaprodine or NU-1779, B-1, 3-dimethyl-4-phenyl-4-propionoxypiperidine, its salts, compounds and preparations. Proclamation No. 2851, August 24, 1949.@

(g) Alphameprodine or NU-1932, a-1-methyl-3-ethyl-4-phenyl-4-propionoxypiperidine, its salts, compounds and preparations. Proclamation No. 3229, March 28, 1958.@

(h) Betameprodine or NU-1932, B-1-methyl-3-ethyl-4-phenyl-4-propionoxypiperidine, its salts, compounds and preparations. Proclamation No. 2851, August 24, 1949 and Proclamation No. 3229, March 28, 1958.@

(i) Morpheridine (morpholinoethylnorpethidine), 1-(2-morpholinoethyl)-4-phenylpiperidine-4-carboxylic acid ethyl ester or 1-(2-morpholinoethyl)-4-carbethoxy-4-phenylpiperidine, its salts, compounds and preparations. Proclamation No. 3214, December 10, 1957.@

(j) Allylprodine (Alperidine, NIH-7440, RO-2-7113), 3-allyl-1-methyl-4-phenyl-4-propionoxypiperidine, its salts, compounds and preparations. Proclamation No. 3266, December 24, 1958.@

(k) Piminodine (Alvodine, Anopridine, Cimadon, NIH-7590, WIN-14098), ethyl 4-phenyl-1-[3-(phenylamino)-propyl]-4-piperidinecarboxylate, its salts, compounds and preparations. Proclamation No. 3297, June 1, 1959.

(l) Diphenoxylate, ethyl 1-(3-cyano-3,3-diphenylpropyl)-4-phenyl-4-piperidinecarboxylate, its salts, compounds and preparations. Proclamation No. 3362, July 18, 1960.#

(m) Benzethidine, ethyl 1-(2-benzyloxyethyl)-4-phenyl-4-piperidinecarboxylate, its salts, compounds and preparations. Proclamation No. 3362, July 29, 1960.@

(n) Furethidine, ethyl 1-(2-tetrahydrofurfuryloxyethyl)-4-phenyl-4-piperidinecarboxylate, its salts, compounds and preparations. Proclamation No. 3362, July 29, 1960.@

2. Methadone Group:

(a) Methadone (Adanon, Amidone, Dolophine, Methadon), 4,4-diphenyl-6-dimethylaminoheptanone-3 or 6-dimethylamino-4, diphenyl-3-heptanone, its salts, compounds and preparations. Proclamation No. 2738, July 31, 1947.

(b) Isomethadone (Isoadanon, Isoamidone), 4,4-diphenyl-5-methyl-6-dimethylaminohexanone-3 or 6-dimethylamino-5-methyl-4,4-diphenyl-3-hexanone, its salts, compounds and preparations. Proclamation No. 2793, July 1, 1948.

(c) Acetylmethadol (methadyl acetate), 4,4-diphenyl-6-dimethylamino-3-acetoxyheptane or 6-dimethylamino-4,4-diphenyl-3-acetoxyheptane, its salts, compounds and preparations. Proclamation No. 2851, August 24, 1949.@

(d) Alphacetylmethadol, a-6-dimethylamino-4,4-diphenyl-3-acetoxyheptane, its salts, compounds and preparations. Proclamation No. 3022, June 16, 1953.@

(e) Betacetylmethadol, B-6-dimethylamino-4,4-diphenyl-3-acetoxyheptane, its salts, compounds and preparations. Proclamation No. 3022, June 16, 1953.@

(f) Alphamethadol, a-6-dimethylamino-4,4-diphenyl-3- heptanol, its salts, compounds and preparations. Proclamation No. 3022, June 16, 1953.@

(g) Dimepheptanol (Methadol, Pangerin, Amidol, NIH-2933), 4,4-diphenyl-6-dimethylaminoheptanol-3 or 6-dimethylamino-4,4-diphenyl-3-heptanol, its salts, compounds and preparations. Proclamation No. 2851, August 24, 1949.@

(h) Dipipanone (Pipadone, Phenylpiperone, Fenpidon, Pamedon, piperidylamidone, piperidylmethadone), 4-4-diphenyl-6-piperidino-3-heptanone, its salts, compounds and preparations. Proclamation No. 3139, June 7, 1956.@

(i) Normethadone (Deatussan, Mepidon, Normedon, Phenyl-dimazone, Ticarda, Veryl), 4,4-diphenyl-6-dimethylamino-3-hexanone, its salts, compounds and preparations. Proclamation No. 3082, February 23, 1955.@

(j) Phenadoxone or CB-11 (Hepagin, Heptalgin, Heptalin, Heptan, Heptazone, Heptone), 4,4-diphenyl-6-morpholinoheptanone-3 or 6-morpholino-4,4-diphenyl-3-heptanone, its salts, compounds and preparations. Proclamation No. 3139, June 7, 1956.@

(k) Dimenoxadol (NIH-7577, Lokarin), dimethylaminoethyl 1-ethoxy-1, 1-diphenylacetate or dimethylaminoethyl diphenyl-a-ethoxyacetate, its salts, compounds and preparations. Proclamation No. 3266, December 24, 1958.@

(l) Dioxaphetyl Butyrate (Amidalgon, Spasmoxale), ethyl 2, 2-diphenyl-4-morpholinobutyrate, its salts, compounds and preparations. Proclamation No. 3139, June 7, 1956.@

(m) Racemoramide, d,1-3-methyl-2,2-diphenyl-4-morpholino-butyrylpyrrolidine, its salts, compounds and preparations. Proclamation No. 3214, December 10, 1957.@

(n) Dextromoramide (Palfium, Jetrium, Pyrrolamidol R-875, SKF-d-5137), d-3-methyl-2,2-diphenyl-4-morpholinobutyrylpyrrolidine or d-2,2-diphenyl-3-methyl-4-morpholinobutyrylpyrrolidine, its salts, compounds and preparations. Proclamation No. 3214, December 10, 1957.@

3. Morphinan Group:

(a) Racemorphan (Citarin, Methorphinan), d,1-3-hydroxy-N-methylmorphinan, its salts, compounds and preparations. Proclamation No. 2879, March 24, 1950.

(b) Levorphanol (Dromoran, Levo-Dromoran, Levorphan, Aromarine), 1-3-hydroxy-N-methylmorphinan, its salts, compounds and preparations. Proclamation No. 2879, March 24, 1950.

(c) Dextrorphan, d-3-hydroxy-N-methylmorphinan, its salts, compounds and preparations. Proclamation No. 2879, March 24, 1950.@

(d) Levomethorphan, 1-3-methoxy-N-methylmorphinan, its salts, compounds and preparations. Proclamation No. 3074, October 18, 1954.

(e) Racemethorphan, d,1-3-methoxy-N-methylmorphinan, its salts, compounds and preparations. Proclamation No. 3074, October 18, 1954.

(f) Norlevorphanol (NIH-7539), (-)-3-hydroxynormorphinan, its salts, compounds and preparations. Proclamation No. 3266, December 24, 1958.@

(g) Levophenacylmorphan (NIH-7525, RO-4-0288), (-)-3-hydroxy-N-phenacylmorphinan, its salts, compounds and preparations. Proclamation No. 3321, October 12, 1959.@

(h) Phenomorphan (NIH-7274), 3-hydroxy-N-phenethylmorphinan, its racemic and levorotatory forms (but excepting its dextrorotatory form), their salts, compounds and preparations. Proclamation No. 3297, June 1, 1959.@

(i) Metazocine (methobenzorphan, NIH-7539), 2′-hydroxy-2,5,9-trimethyl-6,7-benzomorphan, its salts, compounds and preparations. Proclamation No. 3266, December 24, 1958.

(j) Phenazocine (phenobenzorphan, Prinadol, NIH-7519, SKF-6574), 2′-hydroxy-5,9-dimethyl-2-(2-phenylethyl)-6,7-benzorphan, its salts, compounds and preparations. Proclamation No. 3279, June 1, 1959.

4. Thiambutene Group:

(a) Diethylthiambutene (diethibutin, Themalon, diethylambutene), 3-diethylamino-1, 1-di-(2-thienyl)-1-butene, its salts, compounds and preparations. Proclamation No. 3139, June 7, 1956.@

(b) Dimethylthiambutene (aminobutene, dimethibutin, Kobaton, Ohton, Skikiton, Takaton), 3-dimethylamino-1,1-di-(2-thienyl)-1-butene, its salts, compounds and preparations. Proclamation No. 3022, June 16, 1953.@

(c) Ethylmethylthiambutene (Emethibutin, ethylmethiambutene), 3-ethylmethylamino-1,1-di-(2-thienyl)-1-butene, its salts, compounds and preparations. Proclamation No. 3022, June 16, 1953.@

5. Others:

(a) Proheptazine (Proheptazone), 1,3-dimethyl-4-phenyl-4-propionoxyhexamethyleneimine, its salts, compounds and preparations. Proclamation No. 3139, June 7, 1956.@

(b) Diampromide, N-[2-([Methyl]-phenethylamino)-propyl]-propionanilide, its salts, compounds and preparations. Proclamation No. 3377, October 28, 1960.@

(c) Phenampromide, N-(1-methyl-2-piperidinoethyl)-propionanilide, its salts, compounds and preparations. Proclamation No. 3377, October 28, 1960.@

(d) Clonitazene, 2-(p-chlorobenzyl)-1-diethylaminoethyl-5-nitrobenzimidazole, its salts, compounds and preparations. Proclamation No. 3362, July 29, 1960.@

(e) Etonitazene, 2-(p-ethoxybenzyl)-1-diethylaminoethyl-5-nitrobenzimidazole, its salts, compounds and preparations. Proclamation No. 3362, July 29, 1960.@

Class "B" (Oral Prescription) Narcotic Drugs

(Authorized for "oral prescription")

1. Isoquinoline alkaloids of opium, or any of their salts.

(a) Noscapine (Narcotine)‡
(b) Papaverine‡
(c) Cotarnine‡
(d) Narceine‡
(e) Meconin@

2. Apomorphine or any of its salts, alone or in combination with other active non-narcotic medicinal ingredients.

3. Nalorphine (N-allyl-normorphine) or any of its salts.‡

4. (a) Compounds of methylmorphine (codeine), or any of its salts, with equal or greater quantity of isoquinoline alkaloid where codeine content does not exceed eight (8) grains per fluid ounce or one grain per dosage unit. (Copavin, etc.)

(b) Compounds of methylmorphine (codeine), or any of its salts, with one or more active non-narcotic ingredients in therapeutic amounts where codeine content does not exceed eight (8) grains per fluid ounce or one grain per dosage unit. (Codesal, Codempiral, Edrisal with Codeine, etc.)

5. (a) Compounds of dihydrocodeinone, or any of its salts, with a four-fold quantity of any isoquinoline alkaloid where dihydrocodeinone content does not exceed one and one-third grains per fluid ounce or one-sixth grain per dosage unit.

(b) Compounds of dihydrocodeinone, or any of its salts, with one or more active non-narcotic ingredients in therapeutic amounts where dihydrocodeinone content does not exceed one and one-third grains per fluid ounce or one-sixth grain per dosage unit. (Tussionex, etc.)

6. Compounds of dihydrocodeine, or any of its salts, with one or more active non-narcotic medicinal ingredients in therapeutic amounts where the dihydrocodeine does not exceed eight (8) grains per fluid ounce or one grain per dosage unit.

7. Compounds of dihydrohydroxycodeinone (oxycodone, Eucodal, etc.), or any of its salts, with one or more active non-narcotic ingredients in therapeutic amounts where the dihydrohydroxycodeinone does not exceed two-thirds grain per fluid ounce or one-twelfth grain per dosage unit.

8. Compounds of ethylmorphine, or any of its salts, with one or more active non-narcotic ingredients in therapeutic amounts where the ethylmorphine content does not exceed one and one-third grains per fluid ounce or one-sixth grain per dosage unit.

Class "X" Narcotic Drugs (Exempt Preparations)

(Exempted preparations may be sold without prescription)

1. Opium Preparations: containing not more than two grains of opium per fluid or avoirdupois ounce along with therapeutically active non-narcotic ingredients.

2. Morphine Preparations: containing not more than one-fourth grain morphine, or any of its salts, per fluid or avoirdupois ounce.

3. Codeine Preparations: containing not more than one grain codeine, or any of its salts, per fluid or avoirdupois ounce.

4. Dihydrocodeine Preparations: containing not more than one-half grain dihydrocodeine, or any of its salts, per fluid or avoirdupois ounce.

5. Ethylmorphine Preparations: containing not more than one-fourth grain ethylmorphine, or any of its salts, per fluid or avoirdupois ounce.

6. Diphenoxylate Preparations: pharmaceutical preparations in solid forms containing not more than 2.5 mg. diphenoxylate and not less than 25 micrograms of atropine sulfate per dosage unit.

Class "M" Narcotic Drugs (Especially Exempted Preparations)

1. Noscapine Preparations: any pharmaceutical preparation containing noscapine, without limit in quantity, along with either active or inactive non-narcotic ingredients of the type used in medicinal preparations.

2. Papaverine Preparations: any pharmaceutical preparation containing papaverine, without limit in quantity, along with either active or inactive non-narcotic ingredients of the type used in medicinal preparations.

3. Narceine Preparations: any pharmaceutical preparation containing narceine, without limit in quantity, along with either active or inactive non-narcotic ingredients of the type used in medicinal preparations.

4. Cotarnine Preparations: any pharmaceutical preparation containing cotarnine, without limit in quantity, along with either active or inactive non-narcotic ingredients of the type used in medicinal preparations.

5. Nalorphine Preparations: any pharmaceutical preparation containing nalorphine, without limit in quantity, along with either active or inactive non-narcotic ingredients of the type used in medicinal preparations. (Nalline, etc.)

‡ See Class M for preparations classified as exempt.

News

Upper Midwest Hospital Pharmacists Meet

Hospital pharmacists from the Upper Midwest States held a section meeting at the Upper Midwest Hospital Conference in Minneapolis on the afternoon of May 12. Meetings were held at St. Paul Auditorium with John H. McNeely of Eitel Hospital, Minneapolis, presiding. Registrants numbered eighty for the two sessions and were from North Dakota, Minnesota and Iowa.

The program included the following presentations:

"The Purpose and Function of a Hospital Newsletter," by Paul G. Bjerke, Luther Hospital, Eau Claire, Wisconsin.

"A Report of a Study of Individual Dispensing," by Neil Schwartau, Rochester Methodist Hospital, Rochester, Minnesota.

"Special Compounding Services in Hospital Pharmacy," by Duane Kann, State University of Iowa, Iowa City, Iowa.

"Drug Samples in Hospitals," by Glen J. Sperandio, Purdue University, Lafayette, Indiana.

The group adjourned for a dinner meeting which was followed by an evening program presided over by Mr. William Strobeck of the Veteran Administration Pharmacy in Minneapolis. The following program was presented:

"Internship and Residency Programs in Hospital Pharmacy," by Charles Nesbitt, Veterans Administration Pharmacy, Fargo, North Dakota.

"Are All New Drugs Really New?", by Henry E. LaBrecht, Upjohn Company, Kalamazoo, Michigan.

"The Expanding Professional Role and Responsibility of Pharmacy," by Dean Hager, University of Minnesota, College of Pharmacy, Minneapolis, Minnesota.

Hospital Pharmacy Seminar to be Held at University of Iowa

The First Annual Clinical Hospital Pharmacy Seminar will be held at the State University of Iowa College of Pharmacy November 5-8. The program is designed for hospital pharmacists and faculties of colleges of pharmacy who are interested in the expanding areas of parenterals and aerosols. The parenteral laboratory at the State University of Iowa College of Pharmacy manufactures 15,000 units of parenteral solutions monthly for use in the University Hospitals in addition to its use as a teaching laboratory. The aerosol laboratory manufactures pressurized body lotions, hand lotions, room deodorants, medicated ear foams, etc., for use in the University Hospitals. It is also used in conjunction with a graduate course in Aerosol Technology taught in the College of Pharmacy.

The seminar program will include lectures, demonstrations, and laboratory workshops. Topics to be discussed include the economics of hospital parenteral (volume) production, developing a parenteral program, layout and design of a parenteral laboratory, discussion of available commercial production systems, production equipment and quality control. The program devoted to aerosols or pressurized products will include the development, theory, principles and component parts of pressurized products and a discussion of equipment requirements for the establishment of a small scale aerosol production laboratory.

For further information please write Dean Louis C. Zopf, College of Pharmacy, State University of Iowa, Iowa City, Iowa, or William W. Tester, director of hospital pharmacy services, University Hospitals, Iowa City, Iowa.

Pharmacy At CHA Convention

Hospital pharmacists attending the 46th Annual Convention of the Catholic Hospital Association in Detroit, June 12-15, 1961, participated in two sessions. Following the Convention theme, "Attitudes—Action—Achievement," the pharmacy section meetings covered "Elements of Achievement," and "Positive *vs.* Negative Attitude and Action."

The first session was held on Tuesday afternoon June 13 from 3:00 to 5:00 P.M. Following greetings on behalf of the American Society of Hospital Pharmacists by ASHP Past-President Clifton J. Latiolais, Dr. Robert P. Fischelis of Washington D. C. spoke on "Achievement?—Still Achieving." In Dr. Fischelis' remarks, he covered current trends taking place in pharmacy practice and the attitude of practitioners in the profession.

An outstanding paper on "Current Status of the Formulary," by Robert R. Cadmus, M. D., director, North Carolina Memorial Hospital, University of North Carolina, Chapel Hill, was read by Mr. John James of the Catholic Hospital Association. Dr. Cadmus was absent due to illness.

A final paper for the afternoon session covered "Pharmacology—How to Evaluate Medical or Pharmacy Literature," by Byron A. Barnes, Ph.D., head, Department of Physiology and Pharmacology, St. Louis College of Pharmacy, St. Louis, Missouri.

Wednesday's program included a discussion on "Pharmacy in Action," by Don E. Francke, director of

pharmacy service, University Hospital, Ann Arbor, Mich. This paper covered some aspects of the Audit of Pharmaceutical Service in Hospitals which was conducted under the direction of Dr. Francke through a grant from the United States Public Health Service.

Another paper on "The Pharmacist in Action—Teaching Pharmacy to Student Nurses," was presented by Sister Suzanne Marie, S.S.M., pharmacist, St. Mary's Hospital, St. Louis, Missouri.

Concluding the session, Rev. Raban Hathorn, O.S.B., St. Meinrad's Archabbey, St. Meinrad, Indiana, spoke on "Attitudes + or −."

An exhibit depicting services of the Division of Hospital Pharmacy of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and the American Pharmaceutical Association was also shown throughout the Convention. The SOCIETY was represented by Executive Secretary Joseph A. Oddis.

Flack Speaks on TV, University on the Air

In his capacity as Assistant Professor of Hospital Pharmacy, at the Philadelphia College of Pharmacy and Science, Herbert L. Flack, assistant director at the Jefferson Medical College Hospital, spoke on the WFIL - TV University of the Air program. Mr. Flack spoke on the program on May 26, and discussed, "The Hospital Pharmacist—Unseen But Essential." In this discussion, Mr. Flack spoke about the aspects of hospital practice that differ from community pharmacy practice. He also discussed the hospital formulary system as it works to the benefit of the patients.

► THE THIRD ANNUAL LECTURE SERIES in the Pharmaceutical Sciences at the University of Texas College of Pharmacy has been compiled in one volume and is available from the University of Texas College of Pharmacy, Austin, at four dollars ($4.00) per copy. The 1960 volume includes sections on "History of Pharmacy," by Glenn Sonnedecker, "Pharmaceutical Chemistry," by Walter H. Hartung; "Pharmacy Administration," by Max R. Lemberger; "Pharmacy" by Martin Barr; "Pharmacognosy," by Richard Schultes; "Pharmacology," by C. Jelleff Carr; and "Pharmaceutical Standards and Literature," by Justin L. Powers.

Southern California Society to Hold Annual Seminar

The Southern California Society of Hospital Pharmacists wishes to announce that the Annual Seminar will be held at the University of California Conference Center, Lake Arrowhead, California, August 18-20.

Jack S. Heard, president of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, and J. Warren Lansdowne, president of the American Pharmaceutical Association, are featured speakers.

Dr. Sidney Cohen, chief, psychosomatic medicine, Veteran's Administration Hospital, Los Angeles, will present an authoritative discussion of "The Psycho-Pharmacologic Revolution."

Donald Rocklin, M. D., assistant professor of surgery, U.C.L.A. Medical Center will speak on "Newer Cancer Chemotherapeutic Agents."

Al Mannino, manager, Hospital Division, Geigy Pharmaceuticals, will verbalize and project the topic "Will Automation Replace the Hospital Pharmacist?"

Joseph H. Beckerman, chief pharmacist, U.C.L.A. Medical Center, will speak on "Medical Terminology for the Hospital Pharmacist."

Mr. Byron E. Emery, director of chemical control, Cutter Laboratories, Berkeley, California, will discuss "Compatabilities in Parenteral Solutions."

Helen Klutcher, R. N., head nurse, Neurosurgery Unit, Neuropsychiatric Institute, U.C.L.A. Medical Center, will speak on "Nursing-Pharmacy Professional Relations."

The Conference Center can accommodate 120 registrants in an excellent rustic setting, high in the San Bernardino Mountains. Recreational facilities at the Conference Center include swimming, tennis, volleyball and mountain hiking trails.

A champagne cocktail party will highlight the social activities.

Conference Co-Chairmen are Joe Beckerman and Melvin Orchen, both pharmacists at U.C.L.A. Medical Center, Los Angeles.

► Victor F. Serino, administrative officer, U. S. Public Health Service Hospital, Windmill Pointe, Detroit, has recently been advanced to Fellowship in the American College of Hospital Administrators. Announcement of this will be made at the Twenty-Seventh Annual Convocation of the College which will be held on September 24 in Atlantic City, New Jersey. Mr. Serino, who formerly served as a pharmacist in the U. S. Public Health Service, also served a term as President of the Michigan Society of Hospital Pharmacists.

► GROVER C. BOWLES, director, Department of Pharmacy at Baptist Memorial Hospital in Memphis, Tennessee, has been named "Man of the Year in Tennessee Pharmacy," during the recent annual meeting of the Tennessee Pharmaceutical Association. Mr. Bowles, a past-president of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS, is well known to hospital pharmacists and is currently serving a second term as Chairman of the House of Delegates of the American Pharmaceutical Association.

News

Dr. George F. Archambault, chief of the Pharmacy Branch, Division of Hospitals, U. S. Public Health Service, who received an honorary Doctor of Laws Degree at Temple University on March 23, talks with Dr. Albert B. Sabin, developer of the oral liver-virus poliomyelitis vaccine. Dr. Sabin was speaker at the ceremonies and also received the honorary degree of Doctor of Science.

► UNIVERSITY OF TEXAS COLLEGE OF PHARMACY has established a course dealing with small hospitals and hospital pharmacy administration which will be required of all fourth year professional students. The course is to acquaint the student with the small hospitals which are increasing rapidly and the role of the pharmacist in assuring that proper pharmaceutical services are provided in these small institutions. Announcement of the requirement was made in connection with a recent revision of the newly established program of study for the bachelor of science degree in pharmacy at the University of Texas College of Pharmacy.

► NEIL M. DAVIS, director of pharmacy service, Jefferson Medical College Hospital, Philadelphia 7, Pennsylvania, addressed the Maryland Association of Hospital Pharmacists and Maryland League for Nursing at their Joint Meeting in Baltimore, on June 15, 1961. The topic discussed was "Pharmacy—Nursing Avenues of Communication."

► Grant Hospital, Columbus, Ohio, has awarded a ten week part-time undergraduate fellowship to the College of Pharmacy, Ohio State University. The fellowship, awarded to Wayne Todd, a senior at the College of Pharmacy will be used to undertake a cost accounting study on pharmacy, drug charges and the use of a professional prescription fee system at Grant Hospital. It will be carried out under the guidance of Dr. Arthur Lytle, assistant professor of Pharmacy Administration, Ohio State University, College of Pharmacy and Mr. Kurt Kleinmann, chief, pharmacy service, Grant Hospital.

Dean John G. Adams Honored

Dean John G. Adams of Duquesne University School of Pharmacy was honored with a farewell dinner on May 24 in the Seiffert Room at the Peter Mills Auditorium in Rockwell Hall, Pittsburgh. Dean Adams is leaving Duquesne University after five years to become Director of Pharmacy Research at the University of Connecticut College of Pharmacy.

Dr. George F. Archambault, pharmacist director, and pharmacy liaison officer to the Office of the Surgeon General, was guest speaker at the dinner honoring John G. Adams.

Joseph A. Oddis, executive secretary of the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS and a graduate of Duquesne University School of Pharmacy, delivered a tribute to Dean Adams for his outstanding contributions to hospital pharmacy. Father Henry J. McAnulty, president of Duquesne University and Dr. John S. Ruggiero, who will succeed Dean Adams, were among the seventy-five guests in attendance for the evening program. Also included were members of both the University of Pittsburgh School of Pharmacy with Mr. Charles Cleveland, president of the Western Pennsylvania Society of Hospital Pharmacists, as toastmaster.

Books Needed

► SURPLUS, HARD-COVER BOOKS that have to do with medicine, engineering, and architecture are needed by Mahatma Ghandi Memorial College. Students are poor and cannot afford to buy textbooks essential to their studies. If a physician has any such books lying about, may we suggest that he inscribe his name inside the cover, and a friendly word to the prospective reader, then mail (with postage of 1c an ounce) to:

MAHATMA GHANDI COLLEGE
Udipi
Mysore State, India

Pharmacy in The U. S. Public Health Service

► AS OF MARCH 31, 1961, 76 Regular Corps Pharmacy Officers and 84 Reserve Corps Pharmacy Officers were serving with the U.S. Public Health Service - an increase of 11 and 8 officers respectively, over those serving on March 31, 1960. Also, as of March 31, 1961, the Service had 109 inactive Reserve Pharmacy Officers - for a grand total of 269, 160 of whom were on active duty. The Pay and Retirement Schedule of Public Health Service Officers is the same as that of the Armed Services and is under the same Career Compensation Act. Remington's Practice of Pharmacy (10th Edition) carries a chapter entitled "The Pharmacist in Public Health Service" (pp 1291-92) which remains quite current and gives more detailed information on the Service.

Since 1947, the U. S. Public Health Service has recruited pharmacists as commissioned officers only. The majority of these serve as hospital pharmacists. However, several are assigned to other activities such as Personnel, Civilian Health Requirements, Supply activities, Bureau of Prisons (hospital pharmacy), U. S. Coast Guard (Training Academy), Indian Hospitals (as hospital pharmacists), and the U.S. Public Health Service Hospitals (hospital pharmacists and administrators). In addition to these assignments, U. S. Public Health Service pharmacists find use for their talents, training and educational background with the Office of Defense Mobilization, Division of Radiological Health, International Cooperation Administration (overseas); the Divisions of Sanitary Engineering Services and of Biologic Standards (USPHS) and the several Institutes of the National Institutes of Health such as Cancer and Heart. Also, pharmacists are attached to the National Clearinghouse for Poison Control Centers and the 1961 White House Conference on Aging.

For the most part, vacancies in the Service are filled through the Hospital Pharmacy Internship Program conducted by the Division of Hospitals, Bureau of Medical Services. Eleven one-year internships are offered annually to graduates of accredited Schools of Pharmacy (at Boston, Staten Island, Baltimore, Norfolk, New Orleans, San Francisco and Seattle Public Health Service Hospitals). Eighty six applications representing 36 accredited schools (1 less than than last year) were received for the July 1961 internships. Eleven interns and 29 alternates were selected. Alternates not receiving intern appointments are offered staff appointments in the grade of Jr. Assistant Pharmacist (Ensign), as openings occur during the year. These individuals are also trained as career officers. Interns offered appointments starting July 1961 are from the University of Arizona; Brooklyn College of Pharmacy; University of California; Drake University; George Washington University; Ohio Northern University; Ohio State University; Philadelphia College of Pharmacy and Science; Temple University and Toledo University.

The internship year consists of a series of lectures, conferences and practical experiences covering all phases of hospital pharmacy. The intern also rotates through other departments (including Internal Medicine, Surgery, Pathology, Radiology, Nursing and Administration) of the hospital and participates in staff discussions, seminars and demonstrations. He visits local hospital pharmacy services; spends one week at the Clinical Center, National Institutes of Health, Bethesda, Maryland, where he is indoctrinated into Central Sterile Supply, Radiopharmaceutical and Pharmaceutical Development (Research Formulation) Activities as functions of a large medical research center; and four weeks at the U.S. Public Health Service Medical Supply Depot, Perry Point, Maryland, where he is indoctrinated into large volume federal government procurement activities and the operation of the Public Health Service bulk-compounding, prepackaging and assay and analysis laboratories.

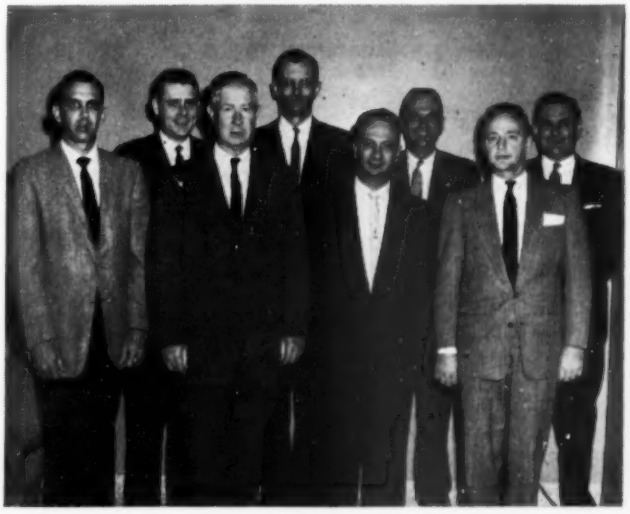
The alternate appointments were awarded to students from Brookyln College of Pharmacy, University of Connecticut, Duquesne University, Ferris Institute, George Washington University, University of Georgia, Howard College of Alabama, Howard University (D.C.), Massachusetts College of Pharmacy, University of Mississippi, New England College of Pharmacy, Ohio State University, Oregon State University, Philadelphia College of Pharmacy and Science, University of Pittsburgh, Purdue University, Rutgers University, St. John's University, South Dakota State College, University of Utah.

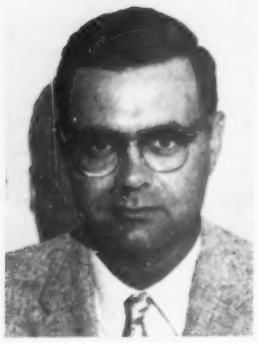
In the field of graduate education, five (5) pharmacy officers, this past year, on government order, engaged in graduate public health studies (Master level) at the Universities of Rochester, Johns Hopkins and others. These officers are being trained in the radiation sciences to serve later in the Division of Radiological Health of the Service.

VA Area Educational and Training Program for Pharmacists

Pharmacists in Veterans Administration Hospitals in the St. Louis Medical Area attended a program of lectures and training in administrative processes and techniques during the week of May 15-19. The program, designed to make VA pharmacists more aware of their responsibilities as administrative persons and help them accomplish this responsibility, was under the direction of Herman L. Coffman, chief, pharmacy service at the Veterans Administration Hospital in St. Louis, Missouri. VA pharmacists attending the meeting are shown in the photograph below.

VA pharmacists attending the Area Educational and Training Program for Pharmacists in St. Louis. Shown in photo, front row, left to right are Robert L. Terrell, Muskogee, Okla.; John W. Claiborne, Jr., M. D., St. Louis; N. E. Hammelman, St. Louis; and Seldon Rubin, Alexandria, La. Back row, left to right are Herman Coffman, St. Louis; John H. Mitchell, Dallas, Tex.; Albert Rosenberg, St. Louis; and Clarence Cook, Houston, Tex.





as the president sees it—

JACK S. HEARD, *St. Francis Memorial Hospital, San Francisco, California*

► THIS MONTH I would like to devote this page to a resume of some of the more important current activities of the SOCIETY. Sometimes some of the projects and day-to-day activities of the SOCIETY's officers and committees are not reported to the membership as often as would be desirable. To partially offset this deficiency, we hope to make good use of this page to "pass the word."

As our new SOCIETY year gets underway, we look to our various committees to accomplish much of the SOCIETY's work. We have received acceptances from most of our chairmen and committee members. We are sorry to report that we have lost Mr. Terry Nichols, our Minimum Standards Committee chairman. Since Terry has taken a position outside of hospital pharmacy, he has resigned his chairmanship. We wish him the best of success in his new endeavor. We are now in the process of appointing another member to this important post.

I am receiving copies of correspondence from some of the committee chairmen, indicating that they are getting right to work. For example, Mr. R. David Anderson, chairman of the Committee on Safety Practices and Procedures, is already "cracking the whip" on his members. He has given assignments to each member and indicated the goals he hopes to achieve. He is also negotiating with the National League of Nursing to complete our joint project—the Proposed Safety Standards for Handling Medications. I hope that all chairmen are proceeding to accomplish the missions assigned to their committees in my Inaugural Address. I am also corresponding with some of the chairmen to further the aims we have for their committees.

In reviewing current activities of the SOCIETY, any comprehensive report on the Office of the Executive Secretary would take more room than we have on this page. Mr. Oddis will be making reports on this page in future issues of the JOURNAL. However, there are a few activities of particular importance at the present time. The moving of the Secretary of the *American Hospital Formulary Service* to the Washington Office is now being accomplished. Mr. Provost is just beginning his duties at the Headquarters. The Executive Secretary is negotiating with the various organizations interested in Pharmacy Service to Nursing Homes and has meetings scheduled to discuss the subject. The recently announced plans of the Army to resume its program of training pharmacy technicians has come to our attention. We have followed this very closely through A.Ph.A. Headquarters. Through this means we are kept informed by the Office of the Surgeon General and in reverse make the feelings of our members known to the Army. We are also represented on the Committee on Status of Pharmacists in Government Service, a pharmacy-wide committee that keeps tabs on such matters as the above. At this writing, the Army's plans are still tentative and full reports will be published when available. Our members can be assured that all available influence of the A.Ph.A. and the ASHP will be used to help maintain and improve the standard of pharmacy practice in the armed forces.

At the time of writing this report, the anti-trust trial against the Northern California Pharmaceutical Association and Mr. Donald K. Hedgepath is in progress. Since the scene is only a few blocks away from my hospital, I have been able to be present at most of the sessions so far. Mr. George Griffenhagen, director of the communications division of the A.Ph.A., is preparing excellent reports of the proceedings. These reports, circulated widely throughout the profession, will give our members a very good picture of the trial. References to hospital pharmacy have been quite limited so far. The most notable instance involved the comparatively low prices paid by hospitals for certain products as compared with prices paid by retail pharmacies for the same products. Also, some hospital pharmacists have been subpoenaed by the defense to testify (along with other experts) to the professional nature of dispensing prescription drugs.

My travel schedule for July includes a meeting of the Joint Committee of the ASHP and the American Association of Colleges of Pharmacy in Ann Arbor, a visit to the Washington Office and one or two chapter visits along the way. In August I will participate in the Institute on Hospital Pharmacy in San Francisco (low travel budget!) and the Southern California Seminar at Lake Arrowhead. I hope to see many of you in the near future.

Jack S. Heard

SELECTED PHARMACEUTICAL ABSTRACTS

and summaries of other articles interesting to hospital pharmacists

edited by NORMAN HO

LUBRICATING TABLET GRANULATIONS

The Incorporation of Tablet Lubricants in the Granulating Agent, II., Munden, Bill J., DeKay, George H., and Banker, Gilbert S., Drug Standards 28:12 (Jan.-Feb.) 1960. (School of Pharmacy, Purdue University, Lafayette, Ind.)

A method of adding water soluble lubricants to tablet granulation ingredients prior to the granulating process was experimentally compared with the normal method of adding a lubricant after granulation. The effectiveness of each lubricant and method was judged by the measurement of the ejection forces required to remove a compressed tablet from the die of a tablet machine. The lubricants tested were polyoxyl 40 stearate U.S.P., polyoxyethylene laurel ether 35 and polyethylene glycols 4000, 6000, 9000 and 20,000. These were prepared in various percentages with several common binders or granulation agents using both the experimental and the conventional methods of adding lubricants. The results of the tests showed a few combinations which yield acceptable tablets. Starch paste was the best granulating agent of those used. The optimum combination with starch paste was 1% polyethylene glycol 9000 dissolved in the granulating agent. Generally, the modified method of dissolving the lubricant in the granulating agent prior to the wet-screening produced slightly lower ejection forces than the conventional method although slightly higher percentages of lubricant are necessary compared with the conventional method. Acceptable tablets were also obtained with the magnesium stearate control added by the experimental method. It appeared that a suspension of the lubricant in the granulating agent is superior to a lubricant solution. The authors also conclude that where water-soluble lubricants are necessary or advantageous, solutions of the soluble lubricant in the granulating agent may be very practical.

LEONARD C. SISK

PYROGENS

A Review of Pyrogens and Fever (Part Five), Whittet, T. D., M & B Pharmaceut. Bull. 10:2 (Jan.) 1961. (University College Hospital London, England.)

The article presents a review on tolerance to pyrogens, the role of endogenous pyrogen in the pathogenesis of fever, and the therapeutic uses of pyrogens. Regarding tolerance to pyrogens, three somewhat conflicting experiments are presented. One experiment showed that tolerance to the pyrogen from *Pseudomonas aeruginosa* develops after repeated injections but that a three weeks' rest causes the tolerance to disappear. A second experiment, on the other hand, found that in a test in rabbits eleven injections of the same pyrogen could be given in each animal over a period of nine weeks with tolerance to the dosage developing. A third experiment found that with daily injections of the same dose of pyrogens a progressive diminution of the febrile response occurred during the first week or ten days, after which an animal responded to each injection with the same degree of fever, even when the injections were continued for several weeks. The concept that an "endogenous pyrogen" might be involved in the mechanism of the fever following the injection of bacterial pyrogens as well as following tissue injury and inflammation has resulted from several observations. The first of these observations showed that after injecting typhoid vaccine into rabbits their serum contained for as long as three hours after injection a factor capable of producing fever in intravenous injection into other rabbits, and that this factor produced fever more rapidly than bacterial pyrogens.

Regarding the therapeutic uses of pyrogens, in the first two decades of this century so-called "protein shock" and other forms of non-specific therapy were used in the treatment of a variety of diseases, especially allergic conditions such as asthma, hay fever and angioneurotic edema. It is now believed that the action of these "protein shock" preparations was due to contamination with bacterial pyrogens. Today purified pyrogens are used in some allergic and dermatological conditions and in certain ophthalmic disorders. Fifty-three references are cited.

LAWRENCE J. RASERO, JR.

STABILITY OF DIHYDROSTREPTOMYCIN

Stability Studies of Dihydrostreptomycin Ointments, Cosgrove, F. P. and Poe, C. F., J. Am. Pharm. Assoc. Sci. Ed. 50:148 (Feb.) 1961. (College of Pharmacy, University of Colorado, Boulder.)

An investigation has been performed to determine the stability and activity of dihydrostreptomycin in various polyethylene glycol-type ointment bases stored at 5 and 25° for a period of five years. For comparative purposes, a petrolatum base ointment was also tested. Four different formulas of polyethylene glycol-type ointment bases were chosen. Base A contained wool fat 20%, liquid petrolatum 25% and white petrolatum 55%; base B contained only polyethylene glycol 1500; base C was a mixture of polyethylene glycol 4000, 45%, and propylene glycol 55%; and base D contained polyethylene glycol 1500, 36%, polyethylene glycol 4000, 20%, cetyl alcohol 4% and propylene glycol 40%. To test the antiseptic value of the ointments, the FDA agar-cup-plate method and the Vincent disk method were used. Each ointment was tested immediately after preparation and samples were stored at 5 and 25°. These samples were analyzed at intervals of seven, fourteen, twenty-one, and thirty days, and then every two or three months until the end of five years. Results showed all of the ointments containing the polyethylene glycol compounds stored at 5° showed excellent keeping qualities during the first two years, and at the end of five years the loss was 20% or less. The losses of activity at the storage temperature of 25° were much greater than those resulting in the ointments stored at 5°. After the first year, the petrolatum-type ointment showed a rapid loss in activity.

LAWRENCE J. RASERO, JR.

PHARMACY FLOOR PLANS

Organization and Layou. of the Hospital Pharmacy, Research and Planning Committee of the Guild of Public Pharmacists, Public Pharmacists 18:24 (Feb.), 1961. (Miss Margaret D. Smith, Pharmaceutical Department, Whipps Cross Hospital, Leytonstone, London, E. 11.)

Suggested layouts for the pharmacy of general hospitals with 100 beds, 250 to 400 beds, and 600 to 800 beds are presented and discussed according to function (dispensing, sterile production, bulk manufacturing, storage, offices, etc.) and area of space, fixtures, and equipment.

NORMAN HO

PYROGENS

A Review of Pyrogens and Fever (Part Four), Whittet, T. D., M & B Pharmaceut. Bull 9:134 (Dec.) 1960. (University College Hospital London, England.)

Although it has been shown that gamma rays can actually destroy pyrogens, their use for this purpose is not of practical value. The dose needed is much greater than that required to kill the most resistant organisms.

Tests with columns of ion-exchange resins showed that it is possible to produce pyrogen-free water from strongly pyrogenic tap water and to remove large quantities of purified pyrogens from solution by means of certain ion exchange resins. Although deionizing plants are capable of producing pyrogen-free water and usually do so, those presently available cannot always be relied upon.

A review of the mode of action of pyrogens upon body temperature and upon leucocytes is also presented. It is believed that pyrogens induce fever, either by stimulating heat production as do tetrahydro-(beta)-naphthylamine and (alpha)-dinitrophenol or by reducing heat loss, or possibly by both mechanisms. Some of the more important experiments on this subject are briefly reviewed, and the evidence presented seems to suggest that pyrogens act on the temperature-control centers in the hypothalamus, mainly causing heat loss, principally through increased activity of the sympathetic nervous system. In its effect on leucocytes it is concluded that pyrogen-induced changes take place through some mechanism differing wholly or in part from that of pituitary adrenal discharge. When pyrogens are injected intravenously into rabbits there is a latent period of about twenty to thirty minutes. In man this period is somewhat

longer, usually being from forty-five to ninety minutes. Since pyrogens are believed to act on the heat-regulating centers in the hypothalamus a possible explanation of the latent period is that it is attributable to the blood-brain barrier. Forty-eight references are cited.

LAWRENCE J. RASERO, JR.

LABORATORY TECHNIQUES

Accuracy and Error in the Lab, Part V: Selection of Tests, Materials, Equipment, Meyers, E., Hosp. Topics 39:61 (May) 1961. (The Myers Clinic and Broaddus Hospital, Philippi, W. Va.)

Selection of laboratory tests and techniques must consider purpose, the particular laboratory, and personnel. A technique manual is desirable and should include those tests and techniques with an optimal balance of simplicity and accuracy. Materials and reagents must be of highest quality and stored properly to maintain this standard. The "Manual" Biochemical Laboratories, Graduate Hospital, University of Pennsylvania, by Keller is recommended. Accuracy of laboratory depends upon the quality and performance of the equipment used.

CHARLES J. HARTLEIB

CONTROL OF DRUG LOSSES

Three Dimensional Drug Losses, Kurtz, A. R. and Smith, J. L., Hosp. Topics 39:53 (Apr.) 1961. (John G. Steinle and Associates, Garden City, N. Y.)

A detailed study of the different types and extents of drug losses in twenty hospitals from a list of 150 most commonly used drugs was made. Drug losses were categorized as follows: (1) inventory losses due to spillage, spoilage, shrinkage, or pilferage, (2) revenue losses due to failure by personnel to enter charges for drugs administered which should be charged to patients, (3) revenue losses due to the administration, without charge, of certain drugs which through procedural changes could be in the chargeable category. The average loss due to inventory losses was found to be $77.63 per bed per year, and $128.30 per bed due to losses in the second category, and $38.70 per bed per year due to losses in the third category. It was noted that hospitals having more active pharmacy committees also had more and greater number of drugs stored on the nursing stations. Although not studied in detail, there was a considerable time loss to the nursing service. In those hospitals utilizing methods of controlling and charging drugs in a centralized pharmacy, the control of inventory and charges was found to be good, but the costs of nursing service manpower in going to and from the pharmacy were extensive. The findings clearly indicated that drug inventory and drug revenue losses were substantial in some hospitals, and that in all probability, every hospital would find a reexamination of its own system of drug control over losses to be advantageous.

PAUL J. PIERPAOLI

TOXICITY TESTS OF SILICONE RUBBERS

A Note on Bacteriological Toxicity Tests of Silicone Rubbers for Medical and Pharmaceutical Uses, Riley, I., and Winner, H. I., J. Pharm. Pharmacol. 13:111 (Feb.) 1961. (Midland Silicones Ltd., Barry, Glam, and the Department of Clinical Pathology, Charing Cross Hospital, London.)

Silicone rubbers have found many applications, typically in blood transfusion tubes, drainage tubes, baby bottle teats, and pharmaceutical vial stoppers. They are generally formulated with siloxane polymers having predominately methyl side groups with a small proportion of unsaturated groups, usually vinyl, and with a fine particle size filler, either amorphous precipitated or a fume silica. The elastic properties are obtained by cross-linking the polymer and filler by curing agents, usually organic peroxy compounds. Vinyl groups enable a wider range of peroxy compounds to be used as curing agents.

Since it was thought that any toxic effects of cured rubbers were likely to arise from decomposition products of the curing agents, the effects of using several curing agents at various states of cure in a basic mixture of a polymethyl vinyl siloxane polymer and a fume silica filler, were investigated. Three curing agents, 2,4-dichlorobenzoyl peroxide, dicumyl peroxide, and di-tertiary-butyl peroxide, were used and two proprietary rubber grades, Silastomer 156 and D.P. 2452 (Midland Silicones Ltd.) were included for comparison purposes. All samples were subjected to one of two preliminary treatments, i.e. washing in acetone and water or autoclaving before curing. Inhibition of bacterial growth of five organisms by the rubber formulation under test was taken as an indication of its toxicity. This test is a modification of the test in the British standard for transfusion rubbers.

The results indicated extremely low toxicity. It was recommended that for medical and pharmaceutical applications silicone rubber is compounded from a polymethyl vinyl siloxane, a fume silica and either dicumyl or 2-4-dichlorobenzoyl peroxide.

NORMAN HO

GENERIC NAME PRESCRIBING

The Generic Fallacy, Boyer, Francis, Drug and Cosmetic Industry, 87:176(Aug.) 1960. (Presented at the Annual Convention, New Jersey Pharmaceutical Association, June 1960.)

This article is a practical summary of the generic name problem. The one objective of generic name use is lower cost to the patient. The author questions whether the cost savings would justify the loss of the present benefits of trademark use and the resulting disadvantages of a complete generic name system. There are advantages and benefits from the use of trademark names. Physicians have an assurance of quality based on the manufacturer's reputation. The pharmaceutical manufacturer has the incentive to conduct research in drug therapy. The pharmacist has confidence in dispensing products which are of high quality even though present government controls do not assure this quality. The change to complete generic name use would require extensive government control to give any guarantee of quality. This would be a very expensive and unwieldly program to administer. A new incentive for research and development would have to be found. In Russia, after 40 years of generic name use, this incentive has apparently not been found. A large volume of the drugs currently prescribed are patented; thus to realize any savings, patents would have to be eliminated or compulsory licensing required. A new system of generic names would have to be developed. It would necessarily be simpler than the present system and would include means for naming the many combinations now bearing trademarks. Agreement on a new generic name by all groups concerned, both national and international, would be very slow. Considering the presently successful method of drug research, production and distribution and considering the costs and difficulties of the generic system, the savings to the patient seem very dubious.

LEONARD C. SISK

CURRENT LITERATURE

. . . also calling your attention to the following articles appearing in recent hospital and pharmaceutical journals

. . . . . .

ADMINISTRATION
—Policy

Bredenberg, Viola C.: The Policy Manual: The Bedrock of Rules, *Hosp. Progress* **42**:57 (June) 1961.

EQUIPMENT

Anon.: How Electronic Rx Dispenser Works, *Am. Druggist* **143**:11 (June 12) 1961.

Fowler, H. W.: Dryers: 1—Mechanical and Convection Dryers, *Manuf. Chemist* **32**:253 (June) 1961.

FLOOR PLANS AND PLANNING

Weatherhead, W. A.: Trends in Hospital Planning, *Public Pharm.* (Great Britain) *18*:138 (June) 1961.

Walch, W.: The Planning of the Pharmacy, *Public Pharm.* (Great Britain) *18*:142 (June) 1961.

Stokes, R. E. and Heslop, T. S.: Engineering and Electrical Supplies for the Pharmacy, *Public Pharm.* (Great Britian) *18*:144 (June) 1961.

Hobbs, Gillian: A New Store for Inflammable Materials, *Public Pharm.* (Great Britain) *18*:150 (June) 1961.

PUBLIC RELATIONS

McDermit, Robert E.: The Art of Reporting, *Hosp. Pharm.* (Canada) *14*:55 (Mar.-Apr.) 1961.

DRUG EVALUATIONS

by the Council on Drugs of the American Medical Association

► DRUG EVALUATIONS as published by the Council on Drugs of the American Medical Association have been reprinted in the AMERICAN JOURNAL OF HOSPITAL PHARMACY regularly. In accordance with an editorial in the December 17 (1960) issue of the *Journal of the American Medical Association 174*:2066, the column formerly known as "New and Nonofficial Drugs" has been replaced by a new column under the name "New Drugs and Developments in Therapeutics." In this, a digest of monographs and drug evaluations will appear.

The monographs will continue to be made available and will be cumulated to appear in the Council's annual publication, *New and Nonofficial Drugs*. For the information of hospital pharmacists, reports made available by the A.M.A.'s Council on Drugs will continue to be published in this column.

The Index included in the February issue of THIS JOURNAL contained reference to those drugs published in the *Journal of the American Medical Association* between October 24, 1959 and December 17, 1960. These monographs were reprinted in THIS JOURNAL between February 1960 and January 1961. All appear in *New and Nonofficial Drugs 1961*, which is now available from either your local book store or from the publishers, J. B. Lippincott Company, Philadelphia, Pa. This makes up the annual compilation of available information on drugs, including their therapeutic, prophylactic and diagnostic status, as evaluated by the Council on Drugs of the American Medical Association.

For the convenience of readers of THIS JOURNAL, a listing of the monographs added to N.N.D. 1961 as well as the monographs omitted from N.N.D. were listed in the March issue of THIS JOURNAL. With that issue, publication of the new series was also started.

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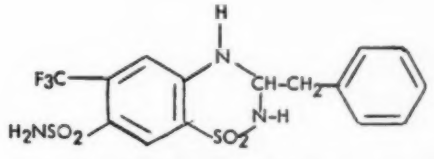
COUNCIL ON DRUGS

*A Council on Drugs' Digest**

New Drugs and Developments in Therapeutics

Bendroflumethiazide — Naturetin®

BENDROFLUMETHIAZIDE (Naturetin) is an orally effective diuretic and antihypertensive agent of the benzothiadiazine-sulfonamide group of compounds. It is highly potent and generally well tolerated, but, as with other agents of this type, patients should be carefully observed for possible untoward effects, especially for signs of excessive fluid or electrolyte loss; those patients receiving prolonged medication or known to be susceptible to potassium depletion should receive supplementary potassium. Current clinical evidence is insufficient to recommend any one of this group of agents over another; however, it appears that relatively less potassium is excreted when this drug is used.



3-Benzyl-3,4-dihydro-6-(trifluoromethyl)-2H-1,2,4-benzothiadiazine-7-sulfonamide 1,1-dioxide

Actions and Uses

Bendroflumethiazide produces a marked increase in urinary excretion of sodium, chloride, and water and a moderate increase in potassium and bicarbonate excretion. Like other drugs in this group, it is used clinically for the treatment of edema and hypertension. Bendroflumethiazide reduces edema in patients with congestive heart failure and is effective in the management of edema associated with nephrosis, corticosteroid therapy, toxemia of pregnancy, the premenstrual period, and ascites due to hepatic cirrhosis. Bendroflumethiazide produces an antihypertensive effect when used alone and enhances the action of other drugs, such as rauwolfia alkaloids, ganglionic blocking drugs, veratrum derivatives, and hydralazine, when used in conjunction with them.

Side Effects

No serious side effects or significant electrolyte imbalance have been observed with the administration of bendroflu-

*The above is the complete report as made available by the Council on Drugs of the American Medical Association. The Digest on the drugs appearing here was in the *J. Am. Med. Assoc. 176*:138 (Apr. 15) 1961.

methiazide. An increase in serum uric acid has occurred in some patients, but few episodes of gouty arthritis have been reported. Like other benzothiadiazine drugs, bendroflumethiazide may cause hyperglycemia and glycosuria in diabetic and other susceptible patients. Other mild and transient side effects occasionally encountered are leg cramps, anorexia, nausea, diarrhea, abdominal cramps, pruritus, rash, and paresthesias.

Pharmacology

The pharmacological actions of bendroflumethiazide are essentially the same as those of chlorothiazide, except that the effective natruretic and diuretic doses of bendroflumethiazide are about 1/100 those of chlorothiazide. When the maximum effective dose is exceeded, no further increases in water and electrolyte loss occur. Experimental data from laboratory and clinical studies indicate that relatively less potassium is excreted after administration of bendroflumethiazide than after administration of chlorothiazide. Serum electrolyte concentrations generally are not altered appreciably. Bendroflumethiazide causes considerably less inhibition of carbonic anhydrase activity in vitro than does chlorothiazide; hence, this property is probably not important for its diuretic activity. It has no effect on the glomerular filtration rate in laboratory studies; thus, its effect on electrolyte excretion is probably a result of inhibition of tubular reabsorption mechanisms. Bendroflumethiazide is absorbed readily from the gastrointestinal tract and excreted principally by tubular secretion. It is excreted more slowly than chlorothiazide, which suggests that it has a longer duration of action.

Route of Administration

Oral.

Dosage

Edema. The usual initial dose is 5 mg. daily, but this may be increased to 20 mg. administered as a single dose or in two divided doses. For maintenance therapy after diuresis has been established, the dose is 2.5 to 5 mg. daily, depending on the response of the patient.

Hypertension. The initial dose is 5 to 20 mg. daily. The maintenance dose is 2.5 to 15 mg. daily, depending upon the requirements of the patient. When used with other antihypertensive agents, the dose of each drug must be reduced; the dosage of ganglionic blocking agents should be reduced 50% and subsequently adjusted in accordance with the blood pressure response.

Precautions

As with other potent diuretics, the possible development of electrolyte imbalance should be borne in mind. Severe electrolyte imbalance requires corrective measures. Bendroflumethiazide is contraindicated in patients with severe renal impairment. It should be used with caution in patients with hepatic cirrhosis or diabetes and in those receiving digitalis or adrenal corticoid therapy. Supplementary potassium should be given to patients on prolonged therapy and to those known to be more susceptible to potassium depletion. Uricosuric drugs may be tried if an increase in serum uric acid concentration occurs.

Preparations

Tablets 2.5, 5 mg.

Commercial Sources

E. R. Squibb & Sons, Division of Olin Mathieson Chemical Corporation.

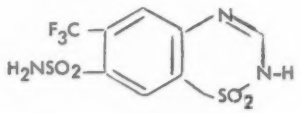
Year of introduction: 1959.

This monograph will be included in the 1962 edition of the Council on Drugs' annual publication, *New and Nonofficial Drugs.*

Evaluated by A.M.A. COUNCIL ON DRUGS—October 5, 1960.

Flumethiazide — Ademol®

FLUMETHIAZIDE (Ademol) is a potent, orally effective diuretic agent equal, but not superior, to chlorothiazide. It is related chemically to chlorothiazide and has a pattern of pharmacological actions similar to that of the latter drug. Although no serious side effects have been reported, patients receiving flumethiazide should be observed carefully for the possible development of electrolyte imbalance.



6-Trifluoromethyl-1,2,4-benzothiadiazine-7-sulfonamide-1,1-dioxide

Actions and Uses

Flumethiazide is one of a group of diuretic agents containing the benzothiadiazine nucleus. It differs from chlorothiazide only by the substitution of a trifluoromethyl group for the chlorine atom of the latter drug. The diuretic potency of flumethiazide appears to equal that of chlorothiazide, and the pattern of electrolyte excretion is the same for both drugs; sodium and chloride are excreted in greater amounts than potassium and bicarbonate. There is suggestive evidence that flumethiazide causes relatively less potassium excretion than chlorothiazide and that potassium excretion is not increased proportionately to the increase in the dosage of flumethiazide; however, additional studies are required to confirm this. Tolerance to repeated administration has not been observed, but whether it occurs after prolonged usage must still be determined.

Flumethiazide is useful in the treatment of edema associated with congestive heart failure and may be of value in reducing edema in toxemia of pregnancy, nephrosis, and hepatic cirrhosis. The available evidence concerning its usefulness in these latter conditions is inconclusive.

Studies on the treatment of hypertension with flumethiazide have been limited, but it appears to have antihypertensive activity comparable to that of chlorothiazide. Like the latter, flumethiazide enhances the effect of other antihypertensive drugs such as rauwolfia and mecamylamine.

Side Effects

Flumethiazide is well tolerated by the majority of patients. No serious side effects have been reported to date. The most common complaints are gastrointestinal disturbances, weakness, and pruritus; other reported side effects are leg cramps, dryness of the mouth, and dizziness. Although a significant electrolyte depletion or imbalance has not been observed, a tendency to develop hypochloremic alkalosis has been noted in some patients.

Pharmacology

The pharmacological actions of flumethiazide are the same as those of chlorothiazide; the principal effect is an

increase in urinary excretion of electrolytes and water. Clinically, flumethiazide has a marked diuretic and natruretic activity; excretion of potassium and bicarbonate is also increased, but to a lesser degree, and the *p*H of the urine is increased slightly. Changes in serum sodium, potassium, and chloride are slight. Flumethiazide has no significant effect on glomerular filtration rate, renal plasma flow, or normal blood pressure. Thus, its effects are apparently the result of an action on the tubular reabsorption of electrolytes. It is a less potent inhibitor of carbonic anhydrase activity, in vitro, than is chlorothiazide.

Flumethiazide is rapidly absorbed from the gastrointestinal tract; its diuretic effect occurs promptly, reaching a maximum within a few hours after oral administration. Laboratory studies indicate that flumethiazide has a low acute toxicity and that its effect on hemodynamic and autonomic functions is negligible.

Route of Administration

Oral.

Dosage

Edema: The initial dose is 500 mg. to 2 Gm. daily in divided amounts. Doses higher than 2 Gm. apparently produce no greater diuretic effect and may produce unwanted reactions. Maintenance dosage after initial diuresis should be individualized and may vary from 250 mg. to 1 Gm. daily in divided doses.

Hypertension: The initial dose is 1 to 2 Gm. daily in divided amounts. Maintenance dose is 1 to 1.5 Gm. daily in divided amounts depending on the requirements of the individual patient. When used as an adjunct to other antihypertensive drugs, the dose of each may frequently be reduced.

Precautions

As with other potent diuretic agents, the possibility that electrolyte imbalance may occur in some patients with the use of flumethiazide should be kept in mind. Patients receiving prolonged drug administration or those known to excrete excessive potassium should be observed carefully for signs of fluid and electrolyte imbalance. Flumethiazide should be given with caution to patients with cirrhosis since they are prone to develop hypokalemia. If flumethiazide is used for the treatment of edema resulting from adrenal corticoid therapy, caution should be exercised since both drugs may cause loss of potassium. The concomitant administration of citrus fruit juices or potassium chloride may help prevent hypokalemia. If fluid or electrolyte disturbances occur, appropriate electrolyte replacement should be given and use of the drug temporarily discontinued.

Preparations

Tablets 500 mg.

Commercial Sources

E. R. Squibb & Sons, Division of Olin Mathieson Chemical Corporation.

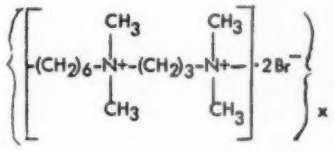
Year of introduction: 1959.

This monograph will be included in the 1962 edition of the Council on Drugs' annual publication, *New and Nonofficial Drugs*.

Evaluated by A.M.A. COUNCIL ON DRUGS—October 19, 1960.

Hexadimethrine Bromide — Polybrene®

HEXADIMETHRINE BROMIDE (Polybrene) is a heparin-neutralizing agent similar in action to protamine sulfate and toluidine blue, but it possibly causes less severe untoward effects than these drugs.



Poly(1,5-dimethyl-1,5-diazaundecamethylene dimethobromide)

Actions and Uses

Hexadimethrine bromide antagonizes the anticoagulant effect of heparin in vitro and in vivo. Presumably the drug combines with heparin in such a way as to neutralize its strong electronegative charge, thereby precipitating heparin from solution. This heparin-neutralizing action of hexadimethrine bromide, which has been objectively demonstrated both in experimental animals and in human subjects, occurs within a few minutes after injection and persists for several hours. Comparative studies in heparinized dogs showed that hexadimethrine bromide is more potent than either protamine sulfate or toluidine blue. Clinical experience indicates that most satisfactory neutralization is obtained by administration of 1 mg. of hexadimethrine bromide for each 100 U.S.P. units of heparin.

Hexadimethrine bromide is useful only to restore normal coagulability to the blood of patients who have received heparin; it does not favorably influence impaired coagulation resulting from other causes. It may be used in the immediate postoperative period for patients who have received heparin to permit extracorporeal circulation during open-heart surgery, before surgery in those patients who have been receiving heparin, and in the newborn infant after exchange transfusion. It also may be used as an antidote after accidental overdosage of heparin.

Side Effects

Side effects are generally mild and transient. Reactions noted in unanesthetized patients include dizziness, giddiness, flushing, coughing, backache, excess perspiration, weakness, numbness, and leg cramps. Transient hypotension has occurred occasionally, but this can usually be prevented by avoiding too rapid an infusion and by using sufficiently dilute solutions of the drug. A transient decrease in the number of thrombocytes has been observed. An anaphylactic reaction occurred in one patient during the third injection of the drug. Normal clotting time is not affected by clinical doses in nonheparinized patients, but large doses are reported to have an anticoagulant effect in nonheparinized dogs. Signs of methemoglobinemia, which may occur after the administration of toluidine blue, have not been reported when hexadimethrine bromide is used.

Route of Administration

Intravenous.

Dosage

The dose of hexadimethrine bromide is 1 mg. for each 100 U.S.P. units of heparin to be neutralized. The calculated dose should be diluted with isotonic sodium chloride solution or 5% dextrose solution in water to give a final concentration of 1 mg. hexadimethrine bromide in 1 cc. of solution. (For example, if the dose is 100 mg., the contents of one 10

cc. ampul is added to 90 cc. of diluent.) Each dose should be given slowly over a period of 10 to 15 minutes. If one dose is insufficient, the same amount may be repeated.

If hexadimethrine bromide is used to neutralize the effect of the repository form of heparin, which has a prolonged action, repeated doses may be necessary to maintain adequate neutralization and normal coagulation time.

Precautions

Hexadimethrine bromide should be administered only in dilute solution and by slow infusion to reduce possible hypotensive and other untoward effects. Particular attention should be given when the drug is administered to patients with impaired cardiovascular or respiratory function, e.g., asthma and chronic pulmonary or cardiac disease. Periodic determinations of blood coagulation time should be made after the use of hexadimethrine bromide.

It should be emphasized that hexadimethrine bromide, like other heparin-neutralizing agents, is effective in controlling postoperative bleeding only when this complication is induced by the use of heparin.

Preparations

Solution (injection) 100 mg. in 10 cc.

Commercial Sources

Abbott Laboratories.

Year of Introduction: 1959.

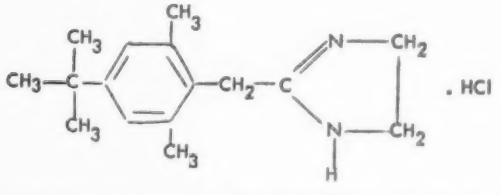
This monograph will be included in the 1962 edition of the Council on Drugs' annual publication, *New and Nonofficial Drugs*.

Evaluated by A.M.A. COUNCIL ON DRUGS—November 30, 1960.

Xylometazoline Hydrochloride

Otrivin® Hydrochloride

XYLOMETAZOLINE HYDROCHLORIDE (Otrivin Hydrochloride) is a vasoconstrictor agent used topically to reduce nasal congestion; its effects are similar to those of other agents of this type.



2-(4-tert-butyl-2,6-dimethylbenzyl)-2-imidazoline hydrochloride

Actions and Uses

Xylometazoline hydrochloride, an imidazoline derivative, related chemically to naphazoline hydrochloride and tetrahydrozoline hydrochloride is a vasocontrictor agent used topically to reduce local swelling and congestion of the nasal mucosa. The available clinical results, based on the subjective reports of patients, indicate that a high percentage obtained satisfactory relief of the nasal congestion associated with acute and chronic rhinitis, vasomotor rhinitis, allergic rhinitis, and sinusitis. Its decongestive effect occurs promptly after administration and persists for several hours. Controlled studies comparing xylometazoline hydrochloride with other vasoconstrictor agents have not been reported.

Side Effects

Side effects of xylometazoline hydrochloride, which are mild and occur only occasionally, include local stinging or burning, sneezing, dry nose, headache, insomnia, drowsiness, palpitations, and rebound congestion. In one objective study in infants, however, xylometazoline hydrochloride was shown to be an effective vasoconstrictor which did not cause the reactive hyperemia that was observed with the other imidazoline vasoconstrictor agents. No effect on blood pressure, blood cell counts, or urine was observed in the clinical studies.

Pharmacology

Xylometazoline hydrochloride possesses sympathomimetic properties; when administered by the intrabuccal route to the anesthetized dog, it did not produce a pressor response at a concentration of 0.1%, but concentrations of 1 or 10% caused an increase in systolic and diastolic blood pressure which was accompanied by bradycardia. No adverse effect on ciliary action was observed in experimental studies using concentrations of 0.1% or less of the drug. Toxicity studies in animals did not reveal any serious toxic effects when xylometazoline hydrochloride was administered topically or systemically.

Route of Administration

Topical.

Dosage

Adults: Two or three drops of a 0.1% solution of xylometazoline hydrochloride may be instilled in each nostril every three or four hours. When the spray is used, the plastic tube should be held upright so that the solution is delivered as a fine spray. The plastic tube, containing a 0.1% solution, is placed in each nostril and squeezed rapidly once or twice.

Children under 12 years of age: The plastic tube, containing a 0.05% solution, is held upright and squeezed rapidly once into each nostril. Administration may be repeated every four hours if necessary.

Precautions

As with other intranasal medications, the prolonged use of xylometazoline hydrochloride may produce a rebound vasodilatation and chemical rhinitis. Prompt discontinuance of the medication will alleviate these reactions; however, it is preferable to prevent their occurrence by using the medication for only a limited time. The 0.1% solution is not recommended for use in children.

Preparations

Solution (nasal) 0.05%, 0.1%.

Commercial Sources

Ciba Pharmaceutical Products, Inc.

Year of Introduction: 1959.

This monograph will be included in the 1962 edition of the Council on Drugs' annual publication, *New and Nonofficial Drugs*.

Evaluated by A.M.A. COUNCIL ON DRUGS—December 28, 1960.

Scientific data were supplied to the Council by Abbott Laboratories (hexadimethrine bromide); Ciba Pharmaceutical Products, Inc. (xylometazoline hydrochloride); E. R. Squibb and Sons, Division of Olin Mathieson Chemical Corporation (bendroflumethiazide, flumethiazide).

Monographs on which this digest is based will be compiled and published annually in *New and Nonofficial Drugs*; interim copies of the complete monographs may be obtained on request from the Secretary, Council on Drugs, American Medical Association, Chicago.

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POSITIONS

in hospital pharmacy

PERSONNEL PLACEMENT SERVICE

The Personnel Placement Service is operated without charge for the benefit of hospitals and pharmacist members of the American Pharmaceutical Association and the AMERICAN SOCIETY OF HOSPITAL PHARMACISTS. The ultimate purpose is the improvement of pharmaceutical services in hospitals, by more adequately fulfilling hospital pharmacy personnel needs and by locating positions which provide challenging opportunities for pharmacists who have indicated an interest in a hospital career.

By participating in the service, the hospital indicates a desire to achieve a pharmaceutical service which meets the *Minimum Standard for Pharmacies in Hospitals.* A description of the position should be submitted to the Division of Hospital Pharmacy on the forms provided. The hospital will receive applications directly from the applicant. The hospital agrees to reply to each application received and to notify the Division of Hospital Pharmacy when the position is filled.

The pharmacist, by participating, agrees to submit a Personnel Placement Service Information Form to the Division of Hospital Pharmacy. The applicant will then be notified of openings listed with the Service as they become available and can negotiate directly with the hospital if he is interested. It is agreed that the Division of Hospital Pharmacy will be notified as soon as a position is accepted.

A listing of positions open and wanted will be made regularly in the AMERICAN JOURNAL OF HOSPITAL PHARMACY without charge. Neither the name of the hospital offering the position nor the name of the applicant will be listed, except by code. All inquiries should be directed as shown below, including the code number.

Address all inquiries to

Division of Hospital Pharmacy
2215 Constitution Avenue, N. W.
Washington, 7, D. C.

positions open

ASST. CHIEF PHARMACIST—500 bed teaching hospital located in West Virginia. B.S. degree with internship required. Forty hour week, three weeks' vacation. PO-290

STAFF OR ASST. CHIEF PHARMACIST—441 bed teaching hospital located in Missouri. Assist chief in compounding and dispensing drugs to inpatients, clinic patients and related duties. Forty-four hour week. Must be registered in Missouri. PO-289

STAFF OR ASST. CHIEF PHARMACIST—504 bed general hospital located in Minnesota. Duties include preparing inpatient orders, outpatient prescriptions and bulk manufacturing. B.S. required. Liberal personnel policies. PO-288

STAFF PHARMACISTS—1200 bed general hospital located in Colorado. Duties include outpatient dispensing and assuming supervisory functions. B.S. required. Hospital experience preferred, and must fulfill U. S. Civil Service requirements. Forty hour week, liberal benefits. PO-287

CHIEF PHARMACIST—227 bed general hospital located in California. Applicant will be responsible for management of pharmacy department, including purchasing of pharmaceuticals. Must be registered with two years' experience as asst. chief or chief pharmacist. Forty-four hour week. Liberal benefits. PO-286

CHIEF PHARMACIST—25 bed general hospital located in Florida. Forty-four hour week. Generous fringe benefits. PO-285

CHIEF PHARMACIST—450 bed general hospital located in Indiana. Duties include purchasing and dispensing of drugs, working with nursing and medical staff, administration and staffing of department. Must be registered, and have a minimum of three years' hospital pharmacy experience. Forty hour week. Liberal benefits. PO-283

STAFF PHARMACIST—300 bed general hospital. Duties include filling inpatient and outpatient prescriptions, maintaining records, filling floor stock medications. Must have B.S. and be registered or eligible for registration in Pennsylvania. Forty hour week. Liberal benefits. PO-282

CHIEF PHARMACIST—190 bed general short-term hospital located in Michigan. Duties include purchasing and dispensing drugs, assist in teaching student nurses. Hospital pharmacy experience. Forty-two hour week, vacation, sick leave and retirement plan. PO-280

STAFF PHARMACIST—280 bed general short-term hospital located in Texas. Duties include filling of inpatient and outpatient prescriptions, floor stock, and maintaining records. Must be registered. Forty hour week. Liberal personnel policy. PO-279

STAFF PHARMACIST—300 bed general short-term hospital. Duties include inpatient and outpatient dispensing, bulk compounding and manufacturing, sterile preparations, and control. Male preferred. Must have B.S. and be eligible for registration in Michigan. Forty hour week. Liberal benefits. PO-278

STAFF PHARMACIST—285 bed general hospital located in Indiana. Duties include compounding prescriptions, and dispensing manufactured drugs. Must be registered. Forty to forty-four hour week, vacation, sick days and retirement plan. PO-277

STAFF OR ASST. CHIEF PHARMACIST—300 bed hospital. Duties include compounding and dispensing medicines, assist in purchasing, maintaining records, furnishing information on medications. Must have B.S. and be eligible for registration in Indiana. Female preferred with experience. Forty hour week, vacation, sick leave, excellent personnel policy. PO-276

STAFF PHARMACIST—560 bed general hospital. Duties include inpatient dispensing with some clinic outpatient service, bulk compounding including preparation of sterile solutions. Must have B. S. and be registered or eligible for registration in Texas. Forty-four hour week. Liberal benefits. PO-274

STAFF PHARMACIST—354 bed general hospital. Must be registered or eligible for registration in Indiana. Forty hour week, liberal benefits. PO-273

ASST. CHIEF PHARMACIST—212 bed general hospital. Duties include filling stock orders for nursing stations and other related duties. Must be registered in Illinois. Female preferred. Forty hour week. Liberal personnel policy. PO-271

ASST. CHIEF PHARMACIST—130 bed general hospital located in Louisiana. Duties include compounding and dispensing drugs and related items, furnishing information to nurses and doctors, maintaining records, and assisting in purchasing and general management of the department. Forty hour week, vacation, hospitalization and sick leave. PO-270

STAFF PHARMACIST—350 bed general hospital. Duties include filling prescriptions, preparing floor supplies and stock solutions, maintaining records and other related duties. B. S. and registration in Missouri required. Forty hour week, liberal employee benefits. PO-266

DIRECTOR, PHARMACEUTICAL SERVICES—600 bed general teaching hospital. Assume responsibility for pharmacy, central sterile supply, and teaching to School of Nursing and professional staffs. Must be eligible for Ohio registration. Liberal employee benefits. PO-264

CHIEF PHARMACIST—185 bed general hospital located in Virginia. In charge of pharmacy, purchasing, personnel, dispensing, and other controls. B.S. required, and at least one years' experience. Forty-four hour week, vacation. PO-262

STAFF PHARMACIST—950 bed general hospital. Duties include filling prescriptions and some manufacturing. Registration in Minnesota required. Forty hour week, vacation, and other benefits. PO-261

STAFF PHARMACIST—400 bed general hospital. New hospital scheduled to open Summer 1961. Duties include compounding and dispensing drugs, medicines and pharmaceutical supplies. Supervising prepackaging program, small out-patient clinic. B. S. and registration in Ohio required. Forty hour week, vacation. PO-260

STAFF PHARMACIST—450 bed hospital in New Jersey. Duties include compounding and dispensing medicines and preparations, preparing and sterilizing injectible medications manufactured in hospital and other related duties. Male or female. Forty hour week, liberal personnel policies. PO-259

STAFF PHARMACIST—700 bed University teaching hospital. Duties include inpatient and outpatient dispensing. B. S. required. Must be registered or eligible for registration in Wisconsin. Forty hour week, vacation and insurance program. PO-255

ASST. CHIEF PHARMACIST—317 bed general hospital located in Delaware. Duties include assisting chief pharmacist in carrying out procedures and policies. Male preferred with internship, preferably M. S. Degree. Forty hour week, vacation and liberal personnel policies. PO-254

STAFF AND ASST. CHIEF PHARMACISTS—600 bed general hospital located in suburb of Chicago. Filling patient prescriptions. Forty hour week. Excellent personnel policies. PO-252

STAFF PHARMACIST— 237 bed general hospital. Duties include filling patient drug orders, outpatient prescriptions and assisting chief pharmacist. B. S. Degree and registration in Iowa required. Forty hour week, vacation and sick leave. PO-250

STAFF PHARMACIST—525 bed general hospital located in Ohio. Duties include filling prescriptions for patients, floor stock and clinic patients. Must be registered in Ohio. Forty hour week, vacation and personnel policies. PO-249

STAFF PHARMACIST—700 bed general hospital. Duties include dispensing drugs from the central and clinic pharmacies. Registration in Georgia required. Male or female. Liberal personnel policies. PO-245

STAFF PHARMACIST—275 bed private hospital in Chicago. Applicant will compound and dispense drugs and medicines. Must be licensed in Illinois. Forty hour week, vacation and other liberal benefits. PO-243

STAFF PHARMACIST—520 bed general private hospital. Duties include compounding and dispensing medicines and preparations according to prescriptions. Female preferred. Must be registered in Washington State. Forty hour week, vacation and other liberal benefits. PO-242

STAFF PHARMACIST—350 bed general hospital. Applicant will assume some supervisory responsibility. B. S. required. Must be registered or eligible for licensure in Ohio. Forty hour week, vacation, sick leave, holidays and group hospitalization. PO-235

CHIEF PHARMACIST—120 bed general hospital located in Kansas. Pharmacist will organize pharmacy department and assist in teaching pharmacology to student nurses. Must be registered or eligible for licensure. Forty-four hour week, vacation and other liberal benefits. PO-230

STAFF PHARMACIST—550 bed teaching hospital located in Virginia. No experience necessary. Female preferred. Forty hour week, vacation and liberal benefits. PO-226

CHIEF PHARMACIST—Psychiatric hospital located in Ohio. Must be registered in Ohio. Forty hour week, vacation and retirement benefits. PO-221

ASST. CHIEF PHARMACIST—204 bed hospital. Duties include dispensing, receiving and labeling drugs, etc. furnishing information to physicians and nurses; teaching student nurses; and being responsible as an assistant department head in administrative and other related duties. Forty hour week, vacation, insurance and sick leave. Must be eligible for registration in Illinois. PO-203

STAFF PHARMACIST—790 bed hospital. Duties include handling and filling of inpatient and outpatient departmental orders, outpatient prescriptions and bulk manufacturing. Must be registered or eligible for registration in Ohio. Male preferred. Forty hour week, vacation, holidays and pension plan. PO-194

CHIEF PHARMACIST—2300 bed mental hospital. Pharmacist will have complete charge of pharmacy, drug orders, stocking, dispensing, compounding necessary records and other pharmacy duties. Must be licensed in Ohio. Forty hour week. Vacation, holidays, insurance, retirement plan and sick leave benefits. PO-189

CHIEF PHARMACIST—264 bed general hospital located in Texas. Plans and directs pharmacy policies, compounds and dispenses medicines, purchases supplies and materials, maintains records, and prepares periodical reports. Must be eligible for or have M. S. Degree. Forty hour week, vacation, retirement, sick leave and insurance plan. PO-177

STAFF PHARMACIST—200 bed general hospital. Duties include compounding, dispensing and manufacturing. Applicant must have B. S. in Pharmacy and be registered in Connecticut. Recent graduate acceptable. Forty-four hour week, vacation, pension plan and hospitalization. PO-168

ASST. CHIEF PHARMACIST—280 bed general hospital. Duties include filling prescriptions and medication orders from various units, supervise pharmacy clerks, assume administrative responsibility when chief pharmacist is absent. Forty-four hour week, sick leave and holidays. Must be registered in Illinois. PO-161

STAFF OR ASST. CHIEF PHARMACIST—150 bed general hospital located in New Mexico. Generous benefits. PO-134

STAFF PHARMACIST—500 bed general hospital located in Oklahoma. B. S. required. Forty hour week. PO-95

ASST. CHIEF PHARMACIST—237 bed general hospital in West Virginia. Female desired. Forty-four hour week, vacation. PO-77

positions wanted

STAFF PHARMACIST—Female, single. Obtained B. S. in 1950 at St. Louis College of Pharmacy and Allied Sciences. Thirteen years' hospital pharmacy experience. Prefers to locate in Northwest or West. Registered in Missouri, Iowa and Florida. PW-353

STAFF PHARMACIST—Male, Single. Obtained B. S. at Detroit Institute of Technology. Hospital pharmacy experience. Prefers to locate in the Midwest. Registered in Michigan. PW-352

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. Obtained B. S. at University of Illinois. Prefers to locate in Illinois. Registered in Illinois. PW-351

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. Obtained B. S. in 1953. Seven year's hospital pharmacy experience. Prefers to locate in the West or Southwest. Registered in New York. PW-350

STAFF PHARMACIST—Male, single. Obtained B. S. in 1959 at State University of Iowa. Prefers to locate in the Midwest. Registered in Iowa. PW-349

CHIEF PHARMACIST—Male, married. B. S. obtained in 1957. Four years' hospital pharmacy experience. Will locate anywhere. Registered in Pennsylvania and D. C. PW-348

STAFF PHARMACIST—Male, single. Obtained B. S. in 1960 at University of Utah. Prefers to locate in the West. Registered in Utah. Will take California State Board Examination in July 1961. PW-346

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. Obtained B. S. in 1943. Hospital pharmacy experience. Prefers to locate in the South. Registered in Florida, Georgia, and North Carolina. PW-345

CHIEF PHARMACIST—Male, married. B. S. Served hospital pharmacy internship. Extensive hospital pharmacy experience. Prefers to locate in California. Registered in California, Massachusetts, and Connecticut. PW-344

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. Obtained B. S. in 1953. Hospital pharmacy experience. Prefers to locate in California. Registered in California. PW-343

STAFF PHARMACIST—Male, single. Obtained B. S. in June 1961. Prefers to locate in the West or Midwest. PW-342

CHIEF PHARMACIST—Male, married. Obtained B. S. in 1954. Seven years' hospital pharmacy experience. Prefers to locate in the Northeast. Registered in Connecticut and Pennsylvania. PW-341

STAFF OR CHIEF PHARMACIST—Male, married. Obtained B. S. and M. S. in 1950. Eleven years' hospital pharmacy experience. Prefers to locate outside continental U.S. Registered in Nebraska and Illinois. PW-340

ASST. CHIEF PHARMACIST—Female, married. Canadian citizen. Five years' hospital pharmacy experience. Prefers to work in an American hospital overseas. Registered in Canada. PW-338

CHIEF PHARMACIST—Male, married. Obtained B. S. in 1952. Hospital pharmacy experience. Prefers to locate in the West, Northwest, Kentucky or Washington, D. C. Registered in Kentucky. PW-337

STAFF PHARMACIST—Male, married. B. S. Hospital pharmacy experience. Will locate anywhere. Registered in Ohio. PW-336

STAFF PHARMACIST—Male, married. Obtained B. S. in 1952. Prefers to locate in Florida. Registered in Maine and Massachusetts. PW-335

CHIEF PHARMACIST—Male, married. Obtained B. S. in 1953. Seven years' hospital pharmacy experience. Served hospital pharmacy internship. Prefers to locate in the Southeast or Southwest. Registered in North Carolina. PW-334

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. Obtained B. S. in 1954. Three years' hospital pharmacy experience. Prefers to locate in the West or East. Registered in Pennsylvania. PW-333

ASST. CHIEF OR CHIEF PHARMACIST—Female, married. Obtained B. S. in 1958. Hospital pharmacy internship. Two years' hospital pharmacy experience. Prefers to locate in Florida. Registered in Florida and Alabama. PW-332

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. Obtained B. S. in 1960. Hospital pharmacy experience. Prefers to locate on the East Coast. Registered in Florida and Georgia. PW-331

STAFF OR ASST. CHIEF PHARMACIST—Male, married. One year's hospital pharmacy experience. Prefers to locate in Florida. Registered in Michigan. PW-330

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. Ph.G. Hospital pharmacy experience. Prefers to locate in Maryland. Registered in Maryland. PW-329

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. Obtained M. S. in 1961. Two years' hospital pharmacy experience. Prefers to locate in Minnesota. Registered in Minnesota and California. PW-327

CHIEF PHARMACIST—Male, married. B. S. Hospital pharmacy experience. Will locate anywhere. Registered in New Jersey and Pennsylvania. PW-326

STAFF OR ASST. CHIEF PHARMACIST—Female, single. B. S. Hospital pharmacy experience. Prefers to locate in the Midwest, West or Northeast. PW-325

STAFF OR ASST. CHIEF PHARMACIST—Female, single. Obtained B. S. in 1960. Hospital pharmacy experience. Will locate anywhere. Registered in Michigan. PW-324

ASST. CHIEF OR CHIEF PHARMACIST—Male, single. Obtained B. S. and M. S. in 1956. Three years' hospital pharmacy experience, and two years teaching experience. Served hospital pharmacy internship. Prefers to locate in the South or Southwest. Registered in Georgia and Tennessee. PW-323

ASST. CHIEF OR CHIEF PHARMACIST—Male, single. Obtained M. S. in 1960. Four years' hospital pharmacy experience. Prefers to locate in California or Missouri. Registered in California and Missouri. PW-322

CHIEF PHARMACIST—Female, single. Obtained B. S. in 1956. Five years' hospital pharmacy experience. Prefers to locate in the East. Registered in Florida and Georgia. PW-320

ASSOC. DIRECTOR OR DIRECTOR OF PHARMACY SERVICE—Male, married. Obtained M. S. in 1960 at University of Michigan. Teaching and hospital pharmacy experience. Served hospital pharmacy internship. Will locate anywhere. Registered in Pennsylvania. PW-319

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. Obtained B. S. in 1960. Prefers to locate in the Southeast. Registered in Tennessee. PW-317

CHIEF PHARMACIST—Male, single. Obtained B. S. in 1955. Serving hospital pharmacy internship. Hospital pharmacy experience. Registered in Texas. Will locate anywhere. PW-314

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. Obtained B. S. in 1954 at University of Cincinnati College of Pharmacy. Three years' hospital pharmacy experience. Prefers to locate in Texas or Hawaii. Registered in Ohio. PW-313

ASST. CHIEF OR CHIEF PHARMACIST—Male, single. Obtained B. S. in 1959 and will obtain M. S. in August at State University of Iowa. Two years' hospital pharmacy experience. Serving hospital pharmacy internship. Prefers to locate in Midwest or West. Registered in Iowa. PW-311

STAFF PHARMACIST—Male, married. Obtained B. S. in 1940 at Brooklyn College of Pharmacy. Will locate anywhere. Registered in New York, Pennsylvania, New Jersey and Florida. PW-307

ASST. CHIEF OR CHIEF PHARMACIST—Female, single. B. S. obtained at Ohio State University College of Pharmacy in 1954. Five years' hospital pharmacy experience. Prefers to locate in the Midwest or East. Registered in Illinois and Ohio. PW-297

STAFF OR ASST. CHIEF PHARMACIST—Male, married. B. S. obtained in 1952 at Idaho State College. Prefers to locate in California. Registered in Idaho, Utah, Washington, Oregon and California. PW-296

CHIEF PHARMACIST—Male, married. B. S. obtained at the Philadelphia College of Pharmacy and Science in 1951. Nine years' hospital pharmacy experience. Prefers to locate in the North, Midwest or in the West. Registered in Pennsylvania and Delaware. PW-294

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. Obtained M. S. at Philadelphia College of Pharmacy. Served hospital pharmacy internship. Three years' hospital pharmacy experience. Prefers to locate in Connecticut. Registered in Connecticut and Pennsylvania. PW-290

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. B. S. obtained at University of Illinois. Extensive hospital pharmacy experience. Prefers to locate in the East or Midwest. Registered in Illinois. PW-287

STAFF OR ASST. CHIEF PHARMACIST—Male, married. Obtained B. S. in 1954 at Rutgers College of Pharmacy. Hospital pharmacy experience. Prefers to locate in Florida. Registered in Florida, New Jersey and New York. PW-286

STAFF OR ASST. CHIEF PHARMACIST—Male, single. Obtained B. S. in 1959 at the University of Colorado. Completed hospital pharmacy internship at Denver General Hospital in June 1960. Prefers to locate in the West or Midwest. Registered in Colorado. PW-284

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. Received at Ohio State University B. S. in Biology in 1952 and B. S. in Pharmacy in 1955. Five years' hospital pharmacy experience. Willing to locate in the East, North or West. Registered in Ohio. PW-277

ASST. CHIEF OR CHIEF PHARMACIST—Female, single. B. S. obtained in 1956 at University of Wyoming. Working towards M. S. at the University of Maryland. Served hospital pharmacy internship. Hospital pharmacy experience. Prefers to locate in the West. Registered in Wyoming. PW-276

ASST. CHIEF OR CHIEF PHARMACIST—Male, single. M. S. obtained in 1958 at University of Texas. Served hospital pharmacy internship. Hospital pharmacy experience. Prefers to locate in the Southwest. Registered in Kansas and Texas. PW-270

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. B. S. obtained in 1955 at the University of Nebraska. Five years' hospital pharmacy experience. Prefers to locate in California. Registered in Nebraska and California. PW-269

ASST. CHIEF OR CHIEF PHARMACIST—Female, single. B. S. Degree. Fifteen years' administrative and practical experience in hospital pharmacy. Prefers Midwest, particularly Illinois or Wisconsin. Registered in Virginia, Illinois, Wisconsin and Michigan. PW-268

CHIEF PHARMACIST—Male, married. B. S. Fourteen years' hospital pharmacy experience. Prefers to locate in the East or Midwest. Registered in Pennsylvania and West Virginia. PW-260

ASST. CHIEF OR CHIEF PHARMACIST—Male, married. B. S. received at Detroit Institute of Technology in 1950. Four years' hospital pharmacy experience. Prefers to locate in Michigan. Registered in Michigan. PW-224

STAFF OR CHIEF PHARMACIST—Male, single. B. S. received in 1952 at St. Louis College of Pharmacy. Two years' hospital pharmacy experience. Registered in Missouri. Prefers to locate on the West Coast, particularly California. PW-217

STAFF PHARMACIST—Female, single. B. S. Seven years' hospital pharmacy experience. Southwest section of country preferred. Registered in Alabama and Georgia. PW-199

CHIEF PHARMACIST—Male, married. B. S. Ten years' hospital pharmacy experience. Registered in Massachusetts, Illinois, Missouri, Kentucky, Tennessee, and Virginia. PW-150

CHIEF PHARMACIST—Male, married. Graduate of St. Johns University College of Pharmacy. Extensive experience as chief pharmacist and purchasing agent. Prefers to locate in New York or New Jersey. Registered in New York and New Jersey. PW-144

CHIEF PHARMACIST—Female, single. Registered in Pennsylvania and Ohio. Twelve years' hospital pharmacy experience as a chief pharmacist. Prefers to locate in Pennsylvania or Ohio. PW-111

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